

# HCD-CL5MD

## SERVICE MANUAL

Ver. 1.3 2005.03




AEP Model  
UK Model  
E Model  
Australian Model

HCD-CL5MD is the tuner, deck, CD, MD and amplifier section in CHC-CL5MD.

This stereo system is equipped with the Dolby® B-type noise reduction system.

\* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

“DOLBY” and the double-D symbol  are trademarks of the Dolby Laboratories Licensing Corporation.

CD SECTION	Model Name Using Similar Mechanism	NEW
	CD Mechanism Type	CDM63B
	Base Unit Type	BU-30BD61
	Optical Pick-up Type	A-MAX.3
MD SECTION	Model Name Using Similar Mechanism	HCD-ZX50MD
	MD Mechanism Type	MDM-7B
	Optical Pick-up Type	KMS-260B/K1NP
TAPE DECK SECTION	Model Name Using Similar Mechanism	NEW
	Tape Transport Mechanism Type	CMAL1Z215B

### SPECIFICATIONS

#### Amplifier section

AEP model:

DIN power output (Rated): 40 + 40 watts  
(6 ohms at 1 kHz, DIN)

Continuous RMS power output (Reference):  
50 + 50 watts  
(6 ohms at 1 kHz, 10% THD)

Music power output (Reference):  
95 + 95 watts  
(6 ohms at 1 kHz, 10% THD)

Other models:

DIN power output (Rated): 40 + 40 watts  
(6 ohms at 1 kHz, DIN)

Continuous RMS power output (Reference):  
50 + 50 watts  
(6 ohms at 1 kHz, 10% THD)

Inputs

VIDEO (AUDIO) IN (phono jacks):  
voltage 250 mV,  
impedance 47 kilohms

CD DIGITAL IN (Supported sampling frequencies:

32 kHz, 44.1 kHz and 48 kHz)

Outputs

PHONES (stereo minijack):

accepts headphones of  
8 ohms or more.

SPEAKER:  
accepts impedance of 6 to  
16 ohms.

#### CD player section

System

Compact disc and digital  
audio system

Laser

Semiconductor laser  
( $\lambda=780$  nm)

Emission duration:  
continuous

Laser output

Max. 44.6  $\mu$ W\*

\* This output is the value  
measured at a distance  
of 200 mm from the  
objective lens surface on  
the Optical Pick-up  
Block with 7 mm  
aperture.

Frequency response

20 Hz – 20 kHz ( $\pm 0.5$  dB)

— Continued on next page —

## MICRO HiFi COMPONENT SYSTEM

9-929-583-14

2005C16-1

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Sony Corporation

Audio Group

Published by Sony Engineering Corporation

# SONY®

HCD-CL5MD

MD deck section

System	MiniDisc digital audio system
Laser	Semiconductor laser (λ=780 nm) Emission duration: continuous
Sampling frequency	44.1 kHz
Frequency response	20 Hz – 20 kHz (±0.5 dB)

Tape deck section

Recording system	4-track 2-channel stereo
Frequency response	40 – 13,000 Hz (±3 dB), using Sony TYPE I cassettes

Tuner section

FM stereo, FM/AM superheterodyne tuner	
FM tuner section	
Tuning range	87.5 – 108.0 MHz (50 kHz step)
Aerial	FM lead aerial
Aerial terminals	75 ohms unbalanced
Intermediate frequency	10.7 MHz
AM tuner section	
Tuning range	531 – 1,602 kHz (with the interval set at 9 kHz)
AEP model:	531 – 1,602 kHz (with the interval set at 9 kHz)
Other models:	530 – 1,710 kHz (with the interval set at 10 kHz)
Aerial	AM loop aerial
Intermediate frequency	External aerial terminals 450 kHz

General

Power requirements	
AEP model:	230 V AC, 50/60 Hz
Australian and New Zealand models:	230 – 240 V AC, 50/60 Hz
Other models:	120 V, 220 V, 230 – 240 V AC, 50/60 Hz Adjustable with voltage selector
Power consumption	
AEP model:	100 watts 0.5 watts (at the Power Saving Mode)
Other models:	100 watts
Dimensions (w/h/d) incl. projecting parts and controls	
Amplifier/Tuner/Tape/MD/CD section:	
	Approx. 215 × 285 × 421 mm
Speaker:	Approx. 210 × 285 × 260 mm
Mass	
Amplifier/Tuner/Tape/MD/CD section:	
	Approx. 8.6kg

Design and specifications are subject to change without notice.

## SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for customers which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for the customer, refer to the following box in the instruction manual. For details on how to check error codes during servicing, refer to the following “Procedure for using the Self-Diagnosis Function (Error History Display Mode)”.

### Self-diagnosis display

This system has a Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.

#### C11/Protected

The MD is protected against erasure.

→Remove the MD and slide the tab to close the slot (Refer to Operating Instruction on page 17).

#### C12/Cannot Copy

You tried to record a CD or MD with a format that the system does not support, such as a CD-ROM.

→Remove the disc and turn off the system once, then turn it on again.

#### C13/REC Error

Recording could not be performed properly.

→Move the system to a stable place, and start recording over from the beginning.

The MD is dirty or scratched, or the MD does not meet the standards.

→Replace the MD and start recording over from the beginning.

#### C13/Read Error

The MD deck cannot read the disc information properly.

→Remove the MD once, then insert it again.

#### C14/Toc Error

The MD deck cannot read the disc information properly.

→Replace the MD.

→Erase all the recorded contents of the MD using the All Erase function (Refer to Operating Instruction on page 27).

#### C41/Cannot Copy

The sound source is a copy of a commercially available music software, or you tried to record a CD-R (Recordable CD).

→The Serial Copy Management System prevents making a digital copy (Refer to Operating Instruction on page 48). You cannot record a CD-R.

#### E0001/MEMORY NG

There is an error in the internal data that the system needs in order to operate.

→Consult your nearest Sony dealer.

#### E0101/LASER NG

There is a problem with the optical pickup.

→The optical pickup may have failed. Consult your nearest Sony dealer.



### Procedure for using the Self-Diagnosis Function (Error History Display Mode).

**Note:** Perform the self-diagnosis function in the “error history display mode” in the test mode. The following describes the least required procedure. Be careful not to enter other modes by mistake. If other modes are entered accidentally, press the **MENU/NO** button to exit the mode.

1. Connect the mains lead to the mains while pressing the **DIMMER**, **FUNCTION**, and **■** buttons together, then release the **DIMMER**, **FUNCTION**, and **■** buttons simultaneously. While the test mode is set, “[Check]” will be displayed.
2. Move **◀▶** left and right to display “[Service]” and press the **ENTER/YES** button.
3. Move **◀▶** left and right to display “Err Display”.
4. Press the **ENTER/YES** button to enter the error history mode. “op rec tm” will be displayed.
5. Select the item to be displayed or executed using **◀▶**.
6. Press the **REC MODE** button to display the selected item.
7. Press the **REC MODE** button another time to return to step 4.
8. Pressing the **MENU/NO** button displays “Err Display” and exits the error history display mode.
9. To exit the test mode, press the **REPEAT** button. This sets the standby state and ends the test mode.

## ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS

## Selecting the Test Mode

Display	History
op rec tm	Displays the total recording time. When the total recording time is more than 1 minute, displays the hour and minute When less than 1 minute, displays "Under 1 min" The display time is the time the laser is set to high power, which is about 1/4 of the actual recording time.
op play tm	Displays the total playback time. When the total playback time is more than 1 minute, displays the hour and minute When less than 1 minute, displays "Under 1 min"
spdl rp tm	Displays the total rotating time of the spindle motor. When the total rotating time is more than 1 minute, displays the hour and minute When less than 1 minute, displays "Under 1 min"
retry err	Displays the total number of retry errors during recording and playback Displays "r xx p yy". xx is the number of errors during recording. yy is the number of errors during playback. This is displayed in hexadecimal from 00 to FF.
total err	Displays the total number of errors Displays "total xx". This is displayed in hexadecimal from 00 to FF.
err history	Displays the past ten errors. Displays "0x ErrCd@ @". X is the history number. The younger the number, the more recent is the history (00 is the latest). @ @ is the error code. Select the error history number using  .
retry adrs	Displays the past five retry addresses. Displays "xx ADRS yyyy", xx is the history number, yyyy is the cluster with the retry error. Select the error history number using  .
er refresh	Mode for erasing the error and retry address histories Procedure 1. Press the <b>REC MODE</b> button when displayed as "er refresh". 2. Press the <b>ENTER/YES</b> button when the display changes to "er refresh?". When "complete!" is displayed, it means erasure has completed. Be sure to check the following after executing this mode. *Data has been erased. *Perform recording and playback, and check that the mechanism is normal.
op change	Mode for erasing the total time of op rec tm, op play tm. These histories are based on the time of replacement of the optical pick-up. If the optical pick-up has been replaced, perform this procedure and erase the history. Procedure 1. Press the <b>REC MODE</b> button when displayed as "op change". 2. Press the <b>ENTER/YES</b> button when the display changes to "op change?". When "Complete!" is displayed, it means erasure has completed.
spdl change	Mode for erasing the total spdl rp tm time These histories are based on the time of replacement of the spindle motor. If the spindle motor has been replaced, perform this procedure and erase the history. Procedure 1. Press the <b>REC MODE</b> button when displayed as "spdl change" 2. Press the <b>ENTER/YES</b> button when the display changes to "spdl change?" When "Complete!" is displayed, it means erasure has completed.



**Table of Error Codes**

Error Code	Description
10	Could not load
12	Loading switches combined incorrectly
20	Timed out without reading the top of PTOC
21	Could read top of PTOC, but detected error
22	Timed out without accessing UTOC
23	Timed out without reading UTOC
24	Error in UTOC
30	Could not start playback
31	Error in sector
40	Retry cause generated during normal recording
41	Retried in DRAM overflow
42	Retry occurred during TOC writing
43	Retry aborted during S.F editing
50	Other than access processing, and could not read address.
51	Focus NG occurred and overran.

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## SECTION 1 SERVICING NOTES

### NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

### FOR CD

#### NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

### FOR MD

#### NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

**CAUTION** : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.  
**ADVARSEL** : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.  
**VORSICHT** : UNSICHTBARE LASERSTRALUNG. WENN ABDECKUNG GEÖFFNET UND SICHERHEITVERRIEGELUNG ÜBERBRÜCKT, NICHT DEM STRAHL AUSSETZEN.  
**VARO!** : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALT-TIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.  
**VARNING** : OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.  
**ADVERSEL** : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.  
**VIGYÁZAT!** : A BURKOLAT NYITÁSÁKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

#### Notes on chip component replacement

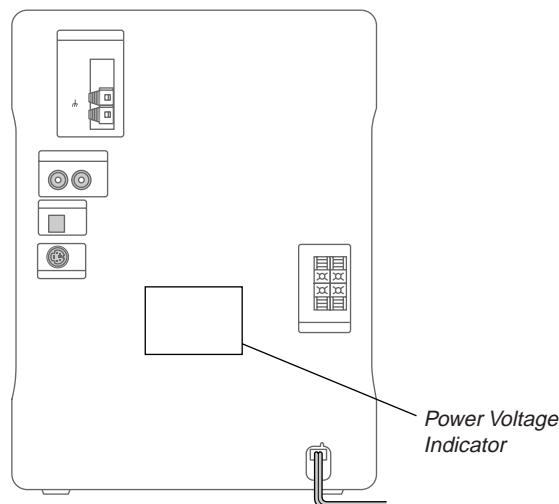
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

#### Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

### MODEL IDENTIFICATION

– Back Panel –



Model	Power Voltage Indication
AEP, UK models	AC: 230 V 50/60 Hz 100 W
Australian model	AC: 230 – 240V 50/60 Hz 100 W
Other models	AC: 120 V, 220 V, 230 – 240V 50/60 Hz 100 W

To inspect the printed circuit boards, use the following jigs.

- Extension jig to inspect the DIGITAL board

Jig for extension between DIGITAL board CN1001 and MAIN board CN701

Part code number: J-2501-019-A 1 pc  
25 pins with 1.25 mm

- Extension jig to inspect the BD (CD) board (RELAY board)

Jig for extension between RELAY board CN2 and MAIN board CN201

Part code number: J-2501-019-A 1 pc  
25 pins with 1.25 mm

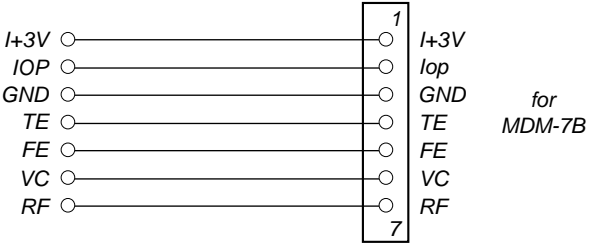
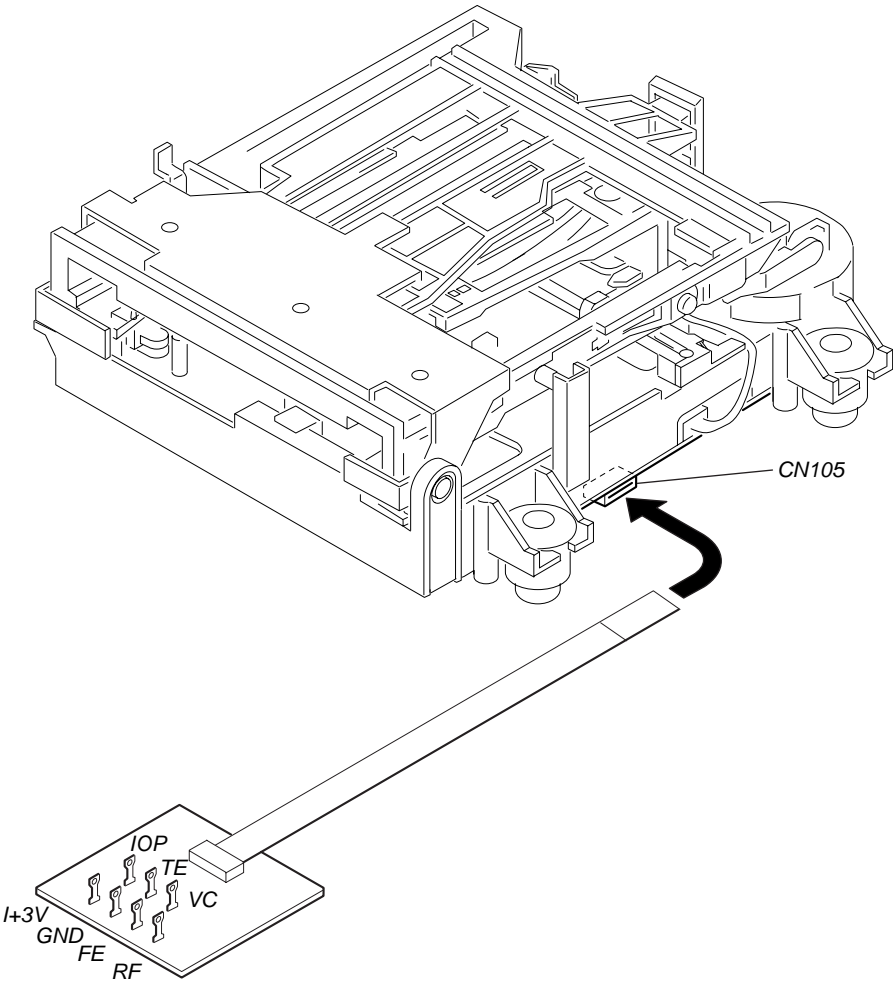
### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

JIG FOR CHECKING BD (MD) BOARD WAVEFORM

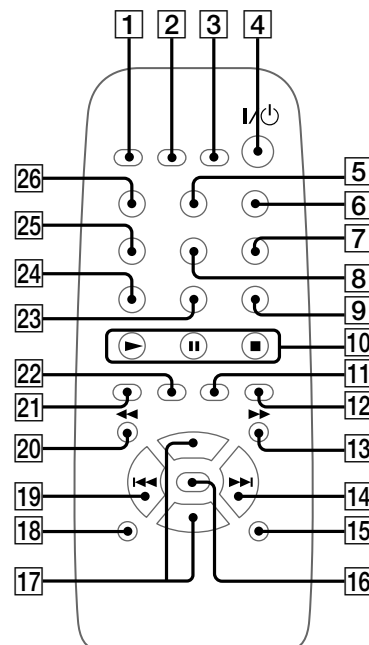
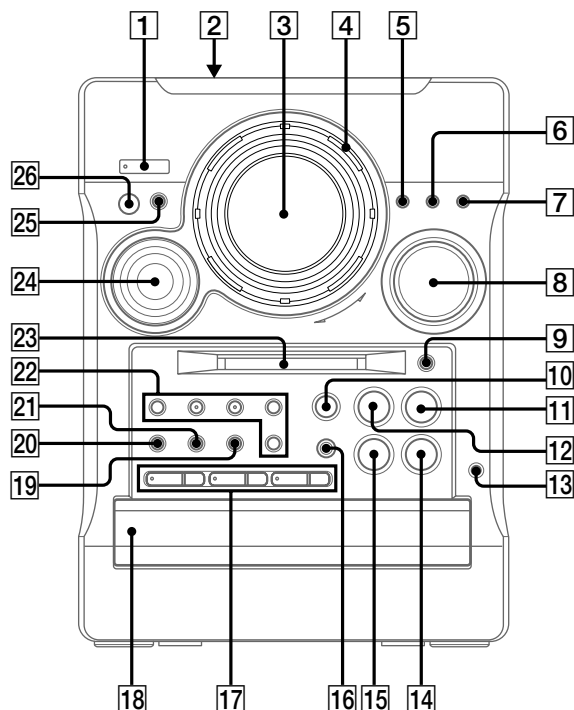
The special jig (J-2501-196-A) is useful for checking the waveform of the BD (MD) board. The names of terminals and the checking items to be performed are shown as follows.

- GND : Ground
- I+3V : For measuring IOP (Check the deterioration of the optical pick-up laser)
- IOP : For measuring IOP (Check the deterioration of the optical pick-up laser)
- TE : TRK error signal (Traverse adjustment)
- VC : Reference level for checking the signal
- RF : RF signal (Check jitter)
- FE : Focus error signal



## SECTION 2 GENERAL

This section is extracted  
from instruction manual.



BASS/TREBLE **24** (40)  
 CD 1 – 3 **17** (11)  
 CD 1 – 3 **▲** **17** (9)  
 CD disc tray **18** (9)  
 CD **▶||** **12** (9)  
 DIMMER **5** (7)  
 DISPLAY **25** (8, 12, 16)  
 Display window **3**  
 ENTER/START **22** (17, 38)  
 ENTER/YES **7** (8, 11, 15, 20,  
 25, 34, 42)  
 FUNCTION **16** (9, 14, 17, 25, 37)  
 GROOVE **20** (40)  
 MD insertion slot **23** (14)  
 MD REC **22** (19)  
 MD **▶||** **14** (14)  
 MENU/NO **6** (24)  
 MUSIC MENU **24** (41)

PHONES jack **13**  
 PLAY MODE/DIRECTION **21**  
 (9, 14, 17, 37)  
 REC MODE **22** (20)  
 Remote sensor **26**  
 REPEAT **19** (10, 14)  
 STEREO/MONO **19** (35)  
 SYNCHRO MODE **22** (17)  
 Tape deck lid **2** (37)  
 TAPE REC PAUSE/START **22**  
 (39)  
 TAPE **◀▶** **15** (37)  
 TUNER/BAND **11** (34)  
 VOLUME **8**

CHECK **8** (11, 15)  
 CLEAR **12** (11, 15)  
 CLOCK/TIMER SELECT **2**  
 (42)  
 CLOCK/TIMER SET **3**  
 (8, 42)  
 DBFB **26** (40)  
 DIMMER **23** (7)  
 DISC SKIP **9** (10)  
 DISPLAY **18** (8, 12, 16)  
 ENTER/YES **11** (8, 11, 15, 20,  
 25, 34, 42)  
 FUNCTION **15** (9, 14, 17, 25, 37)  
 GROOVE **16** (40)  
 MENU/NO **21** (24)  
 MUSIC MENU **6** (41)

NAME EDIT/CHARACTER **22**  
 (12, 25, 36)  
 REPEAT **7** (10, 14)  
 SCROLL **25** (13, 26)  
 SLEEP **1** (41)  
 SURROUND **5** (40)  
 TUNER/BAND **24** (34)  
 VOL +/- **17**

### BUTTON DESCRIPTIONS

I/⏻ **1**  
 ◀◀/▶▶ **4**  
 ▲ **9**  
 ■ **10**  
 ◀◀/▶▶ **24**  
 +/- **24**

### BUTTON DESCRIPTIONS

I/⏻ **4**  
 ▶ **10**  
 ■ **10**  
 || **10**  
 ▶▶ **13**  
 ▶▶ **14**  
 ◀◀ **19**  
 ◀◀ **20**

## Setting the time

- 1 Turn on the system.
- 2 Press **CLOCK/TIMER SET** on the remote.  
Proceed to step 5 when you set the clock for the first time.
- 3 Turn **◀◀/▶▶** (or press **◀◀** or **▶▶** on the remote) to select “**CLOCK SET?**”.
- 4 Press **ENTER/YES**.
- 5 Turn **◀◀/▶▶** (or press **◀◀** or **▶▶** on the remote) to set the hour.
- 6 Press **ENTER/YES** or **▶▶**.  
The minute indication flashes.
- 7 Turn **◀◀/▶▶** (or press **◀◀** or **▶▶** on the remote) to set the minute.
- 8 Press **ENTER/YES**.  
The clock starts working.

If you made a mistake

Press **◀◀** or **▶▶** repeatedly until the incorrect item flashes, then set it again.

To change the preset time

Start over from step 1.

## Saving the power in standby mode

**Press DISPLAY repeatedly when the system is off. Each time you press the button, the system switches cyclically as follows:**

Demonstration → Clock display → Power Saving Mode

To cancel the Power Saving Mode

Press **DISPLAY** once to show the demonstration, twice to show the clock display.

Tip

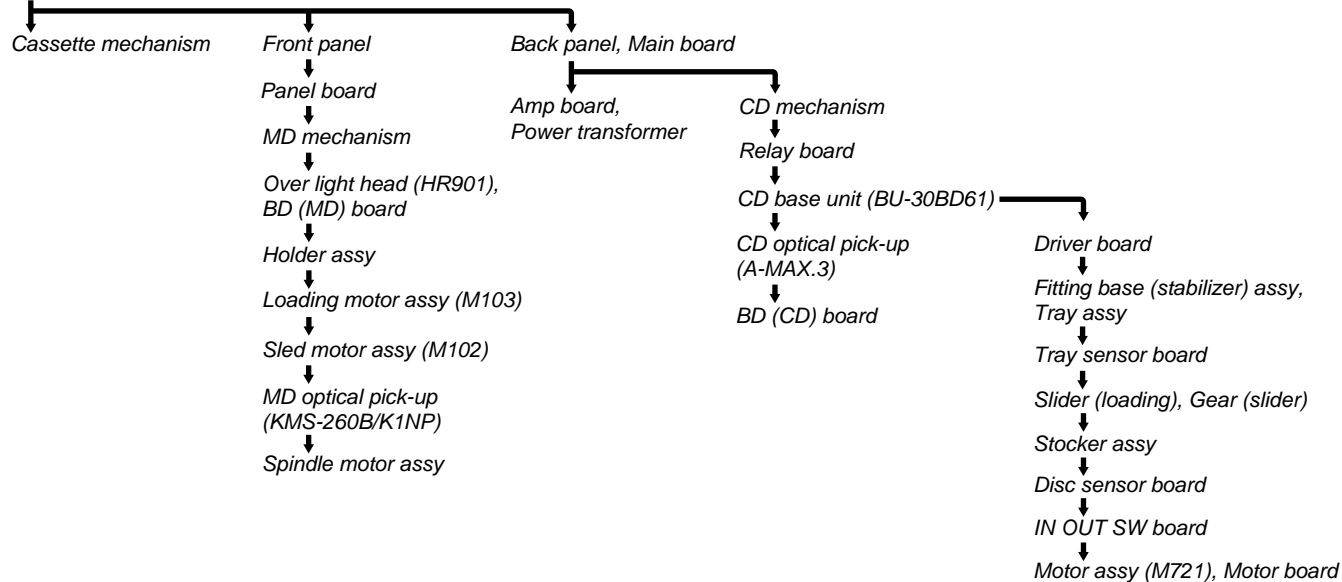
**I/⏻** indicator lights up even in the Power Saving Mode.

## SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

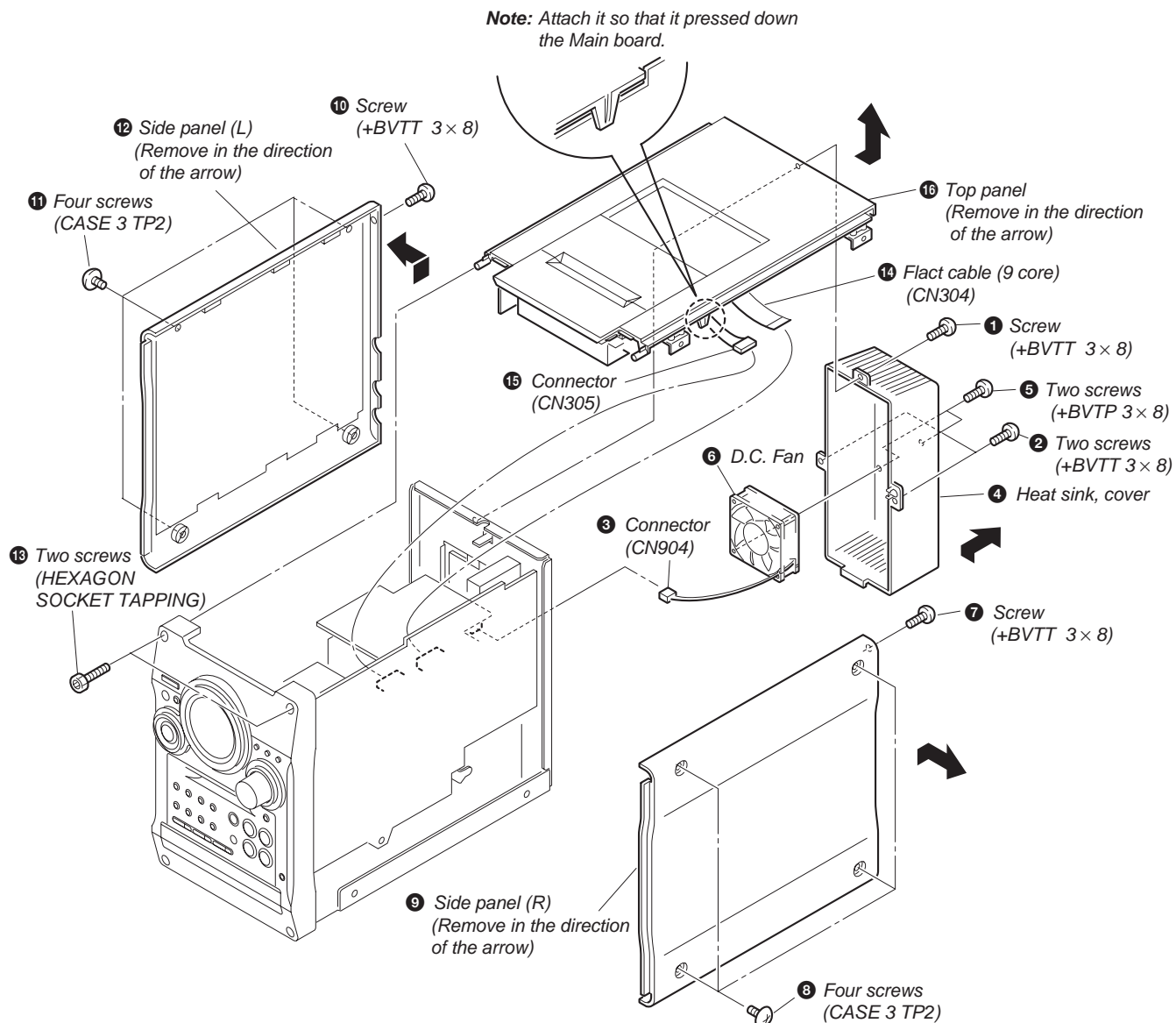
Set

Top panel, Side panel

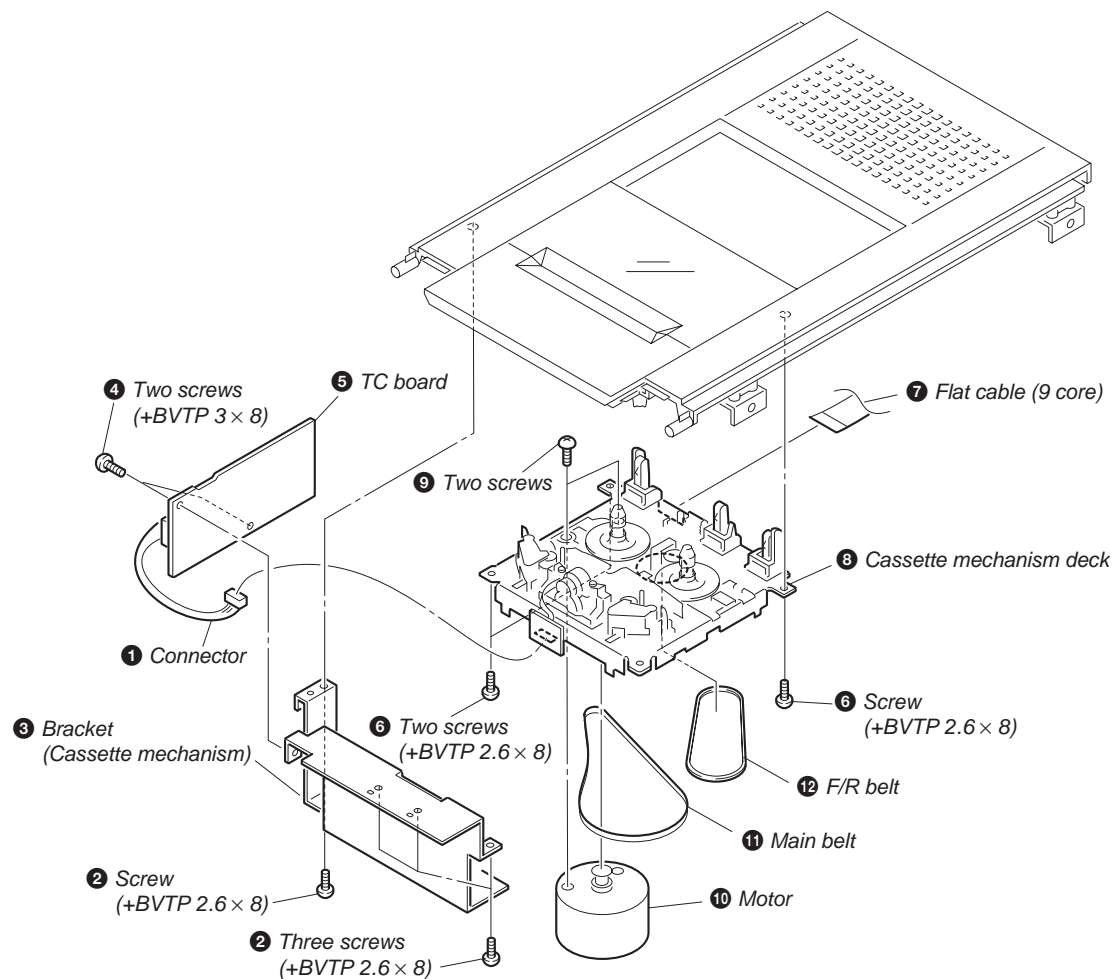


**Note :** Follow the disassembly procedure in the numerical order given.

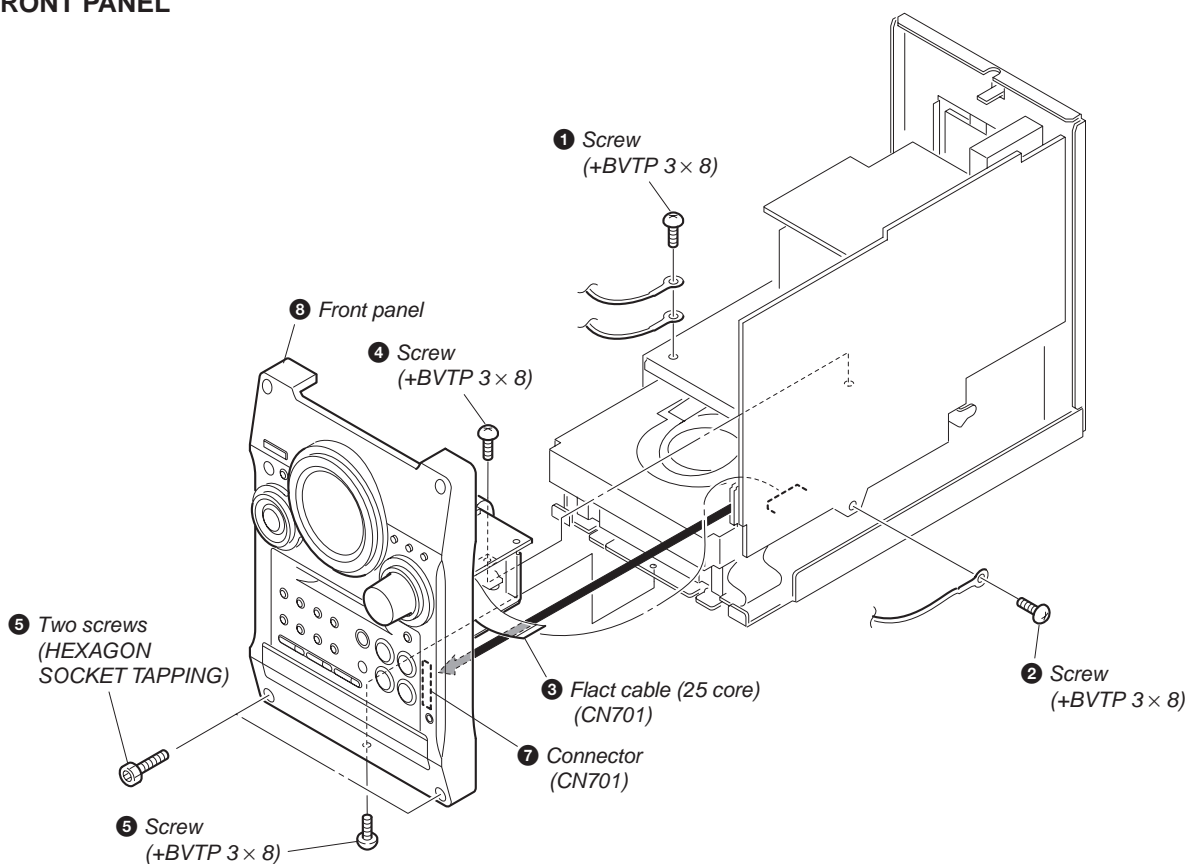
### 3-1. TOP PANEL, SIDE PANEL



## 3-2. CASSETTE MECHANISM

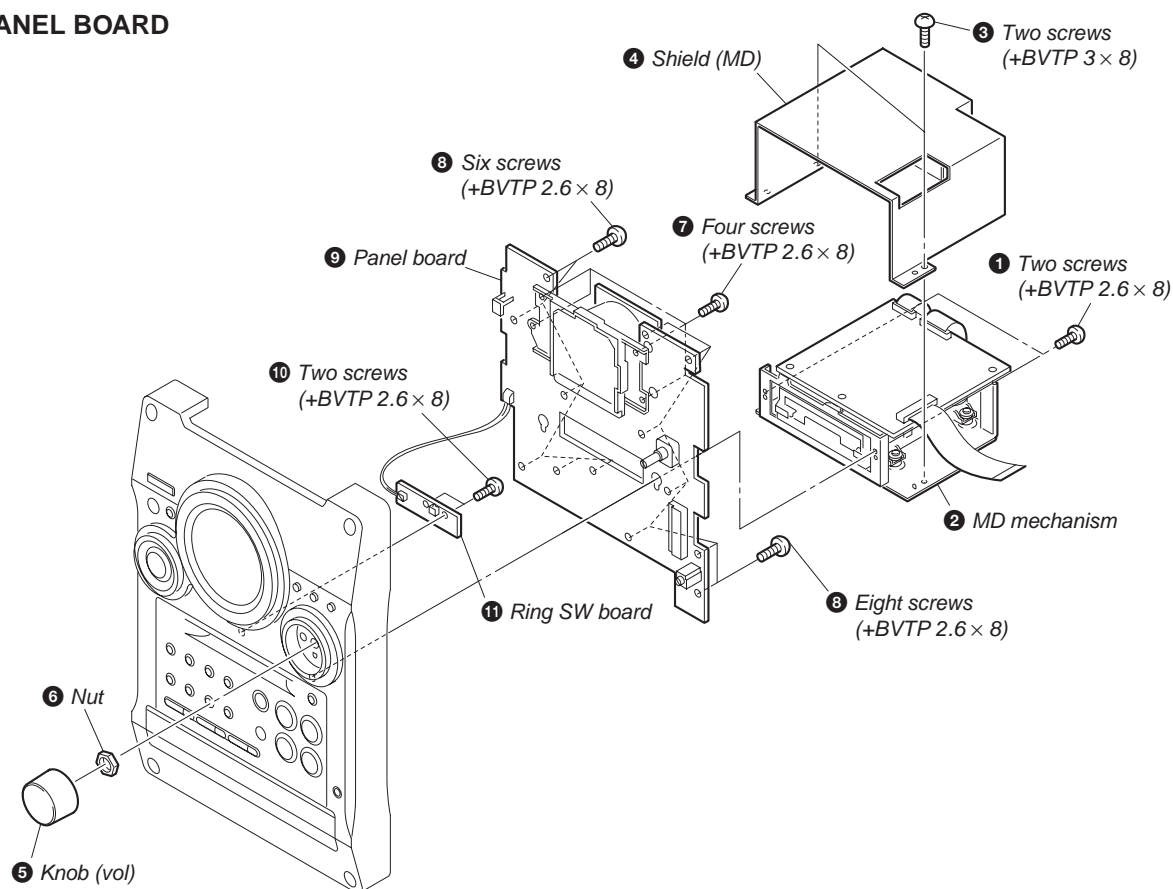


## 3-3. FRONT PANEL

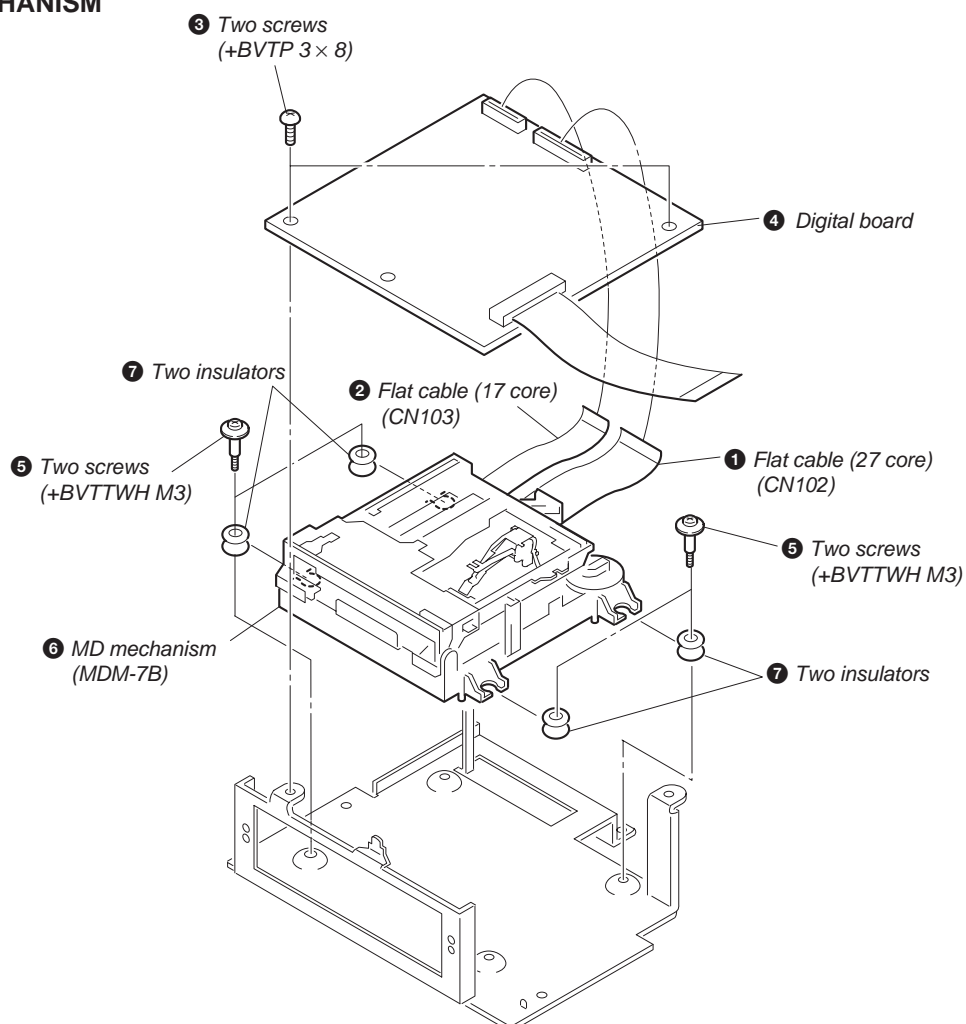




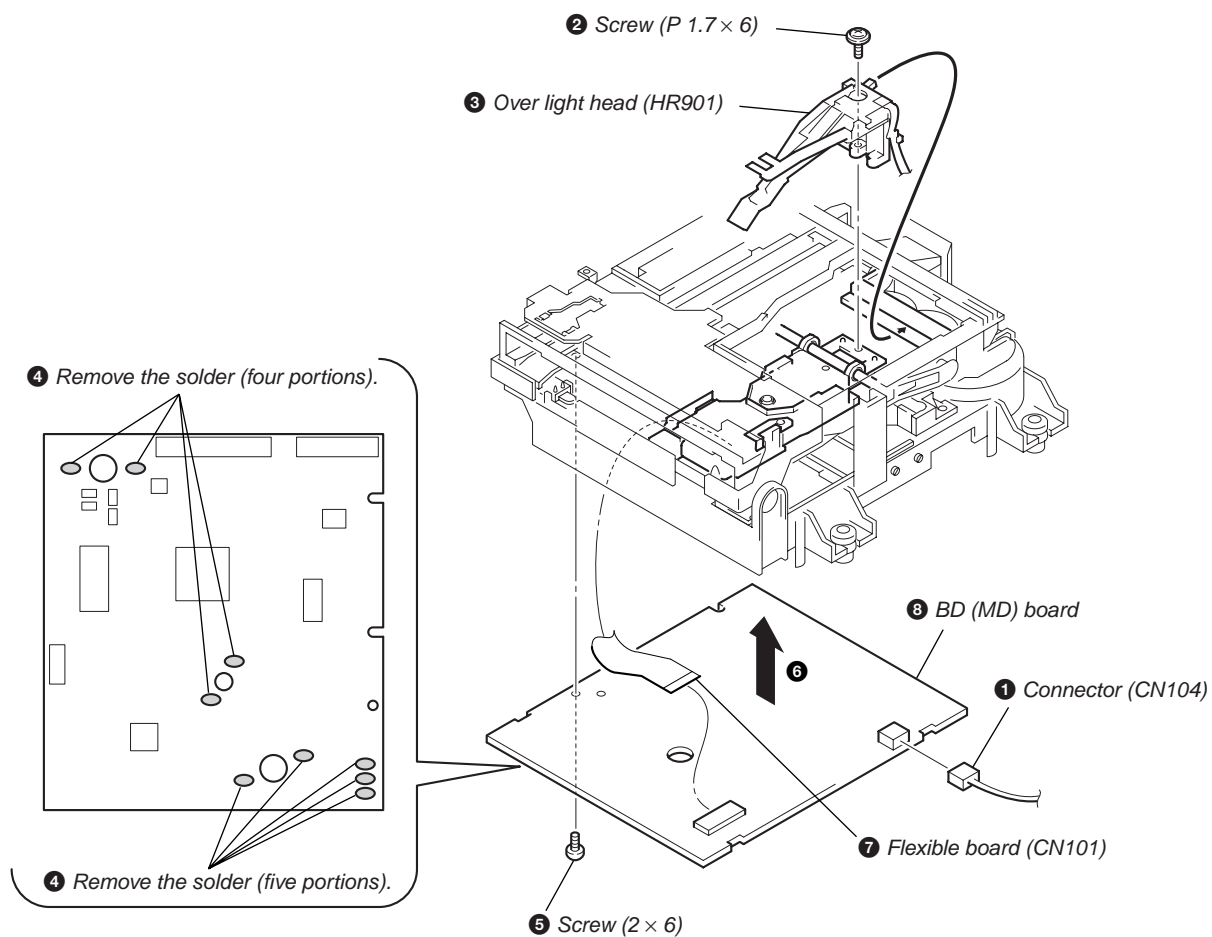
### 3-4. PANEL BOARD



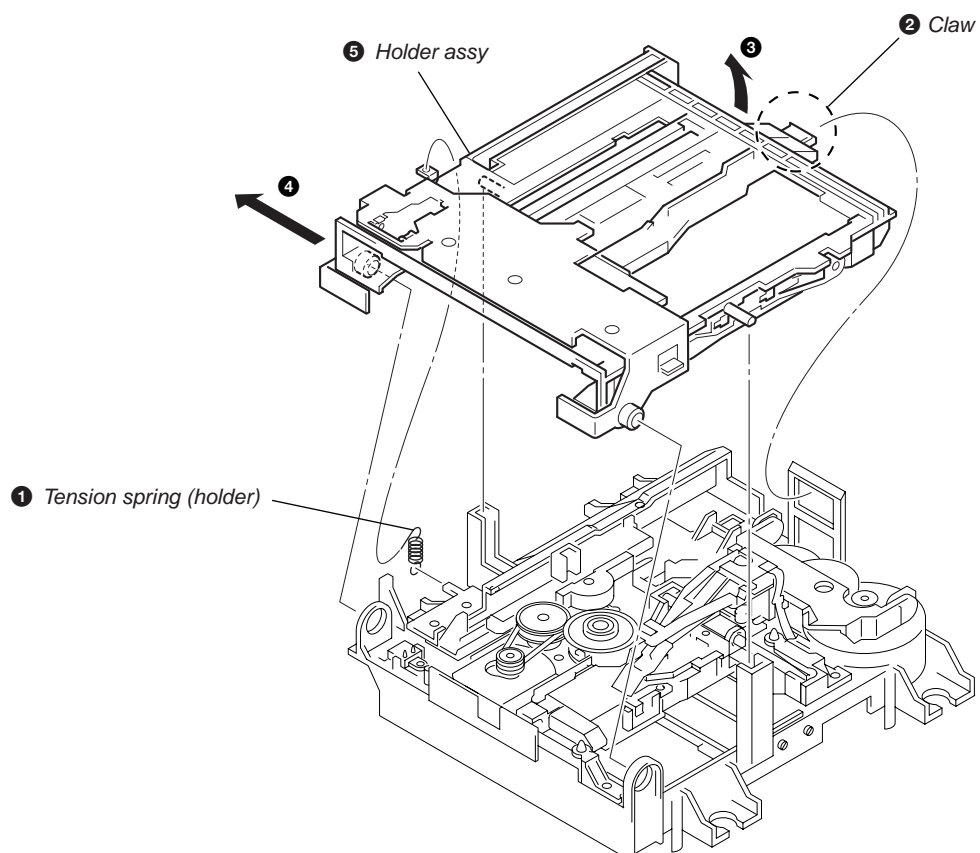
### 3-5. MD MECHANISM



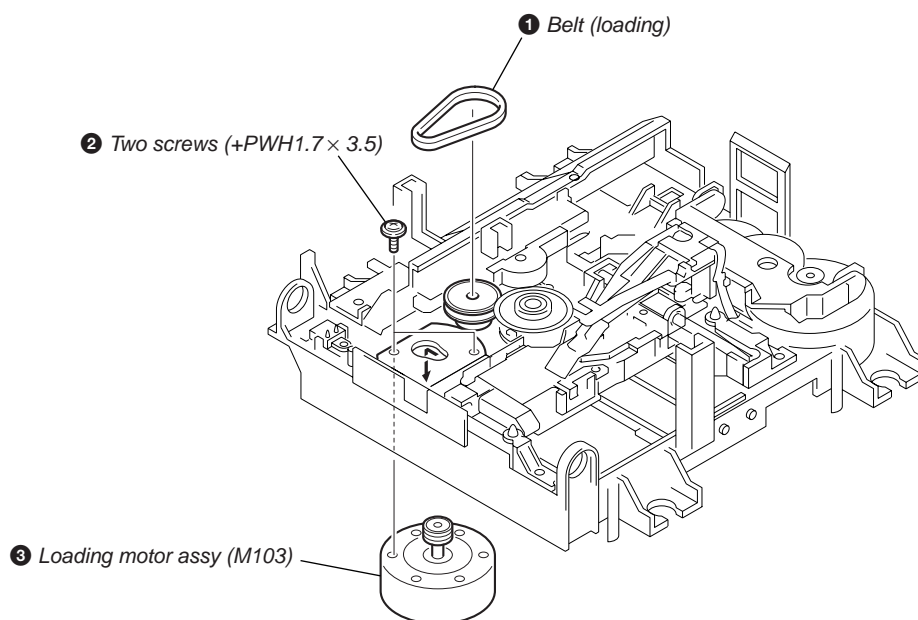
## 3-6. OVER LIGHT HEAD (HR901), BD (MD) BOARD



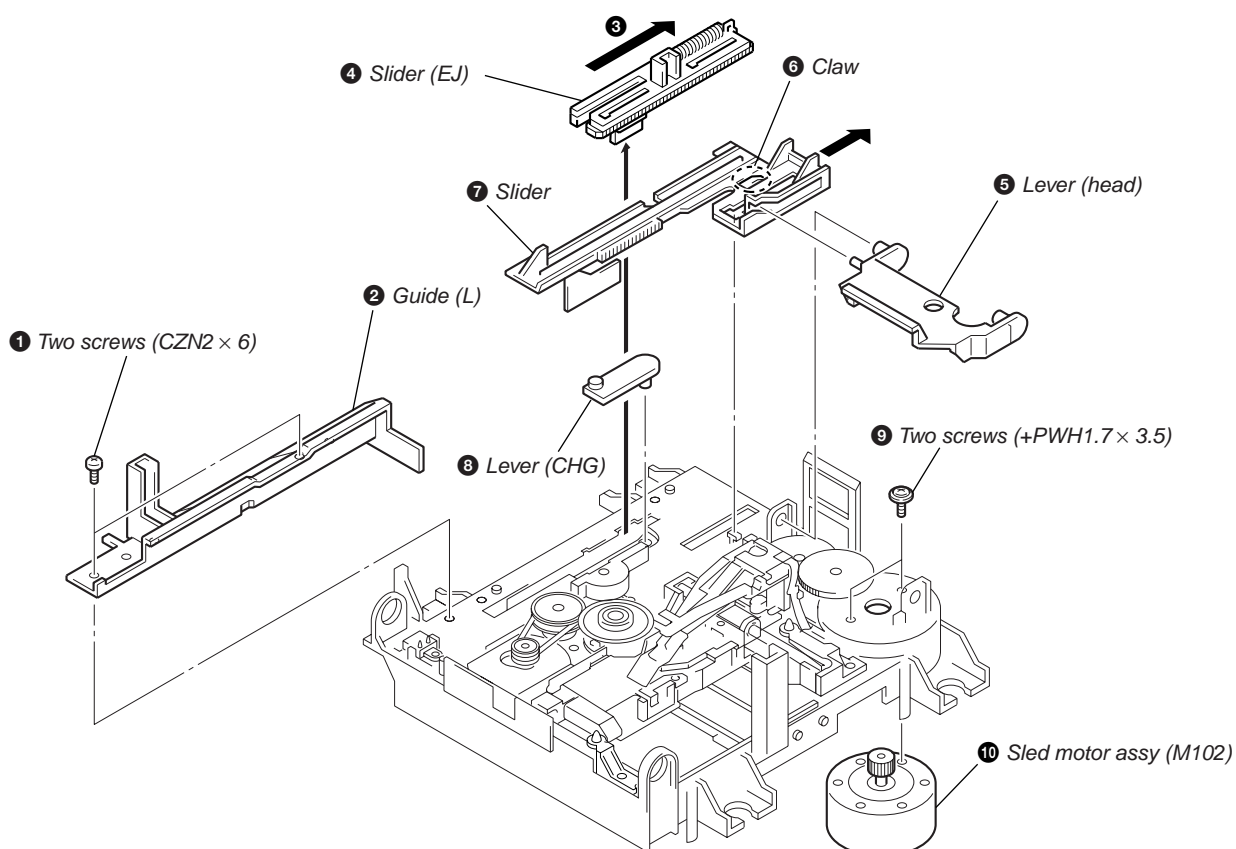
## 3-7. HOLDER ASSY



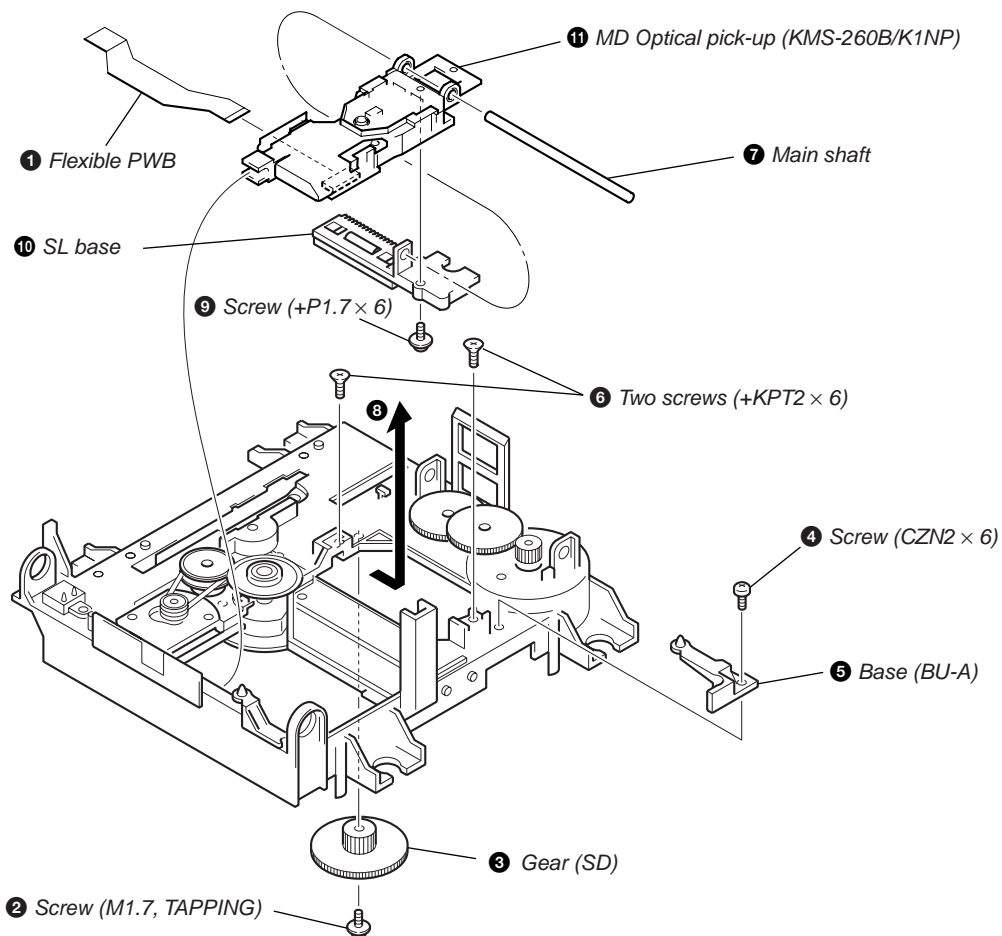
## 3-8. LOADING MOTOR ASSY (M103)



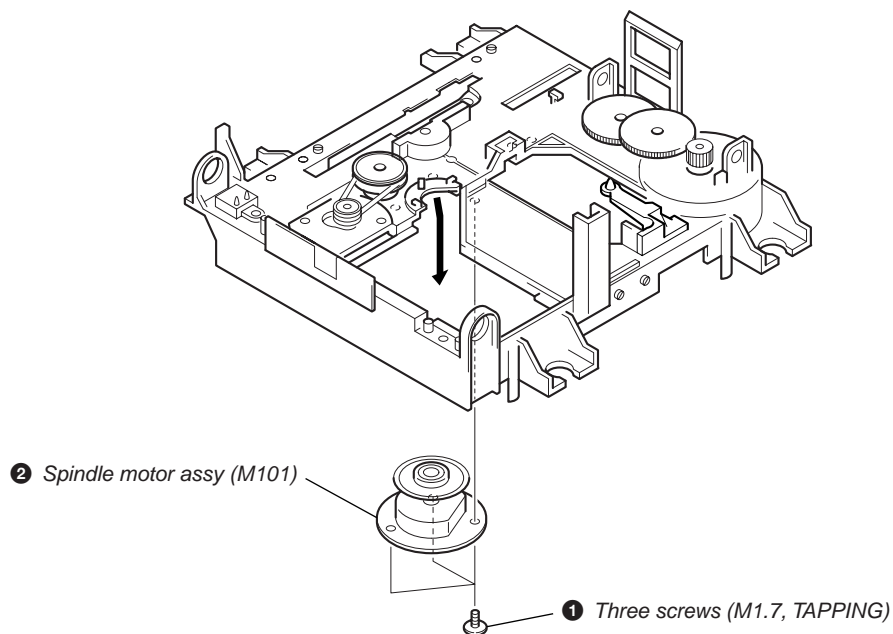
## 3-9. SLED MOTOR ASSY (M102)



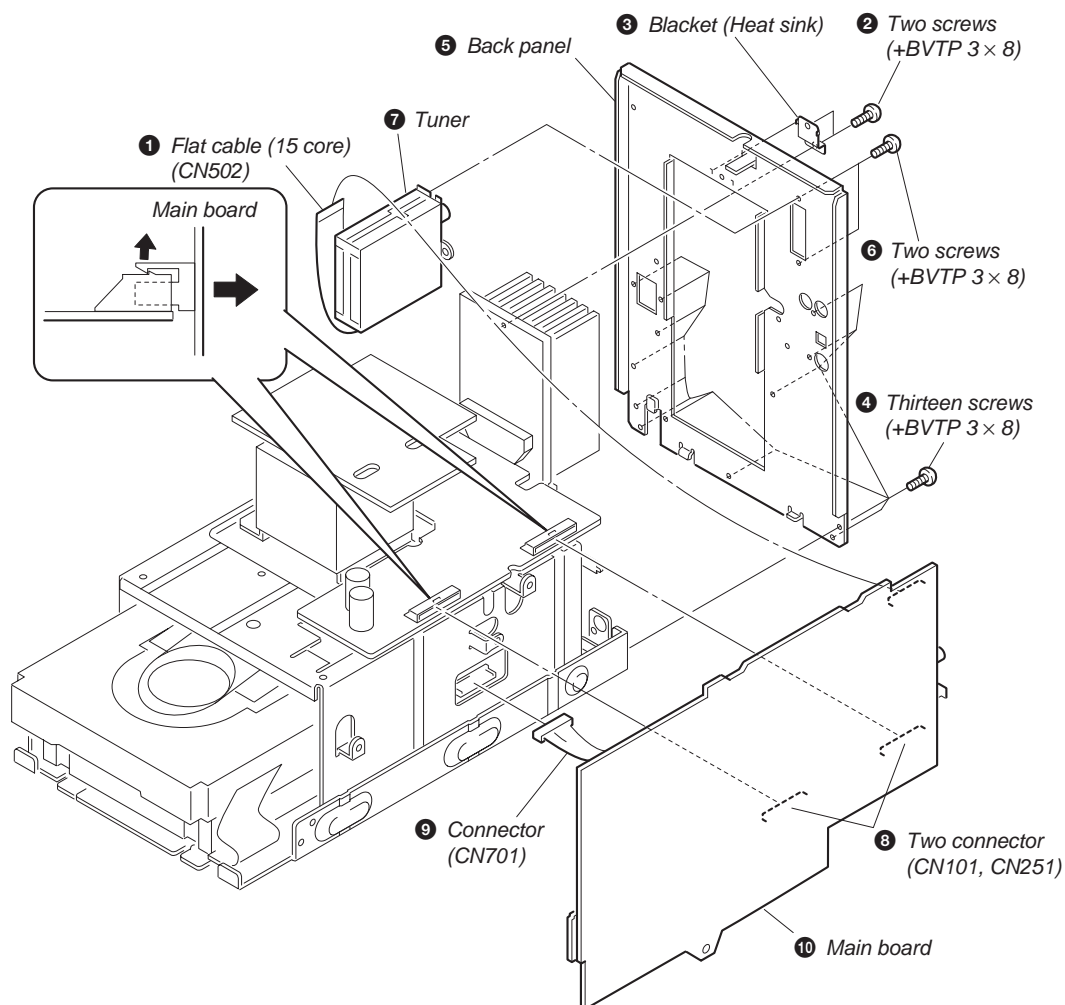
## 3-10. MD OPTICAL PICK-UP (KMS-260B/K1NP)



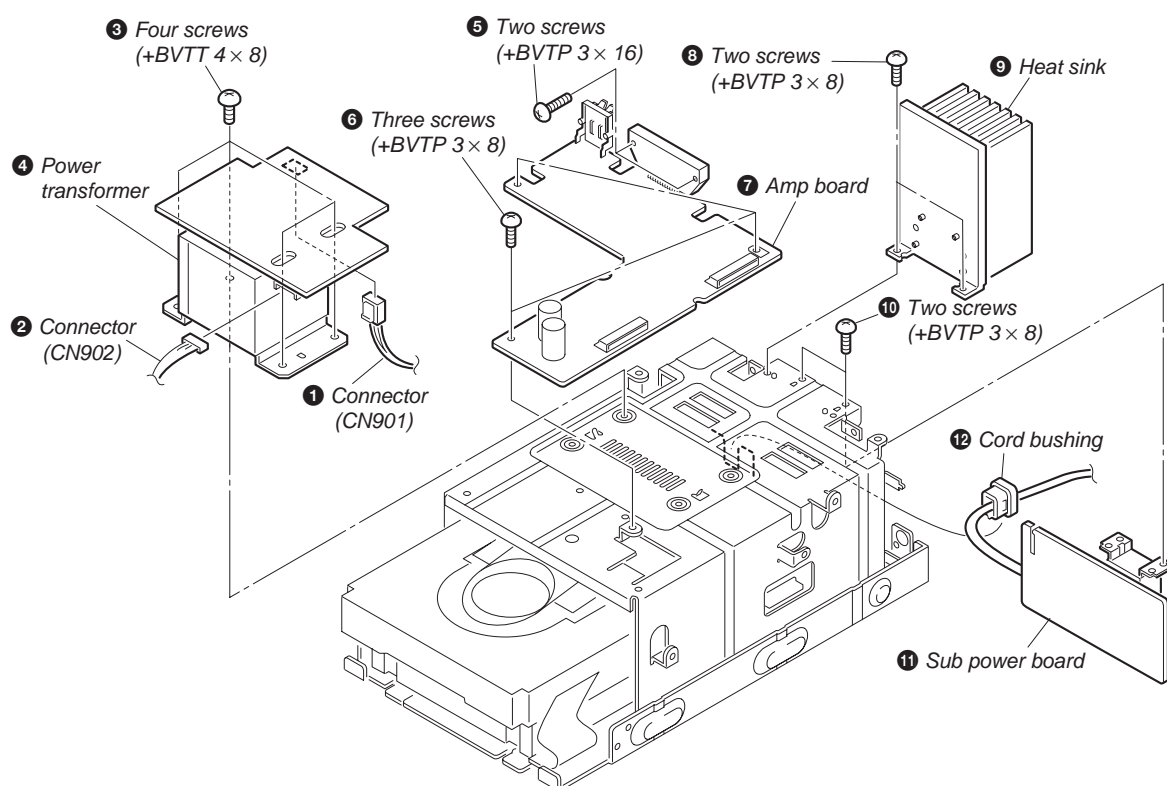
## 3-11. SPINDLE MOTOR ASSY



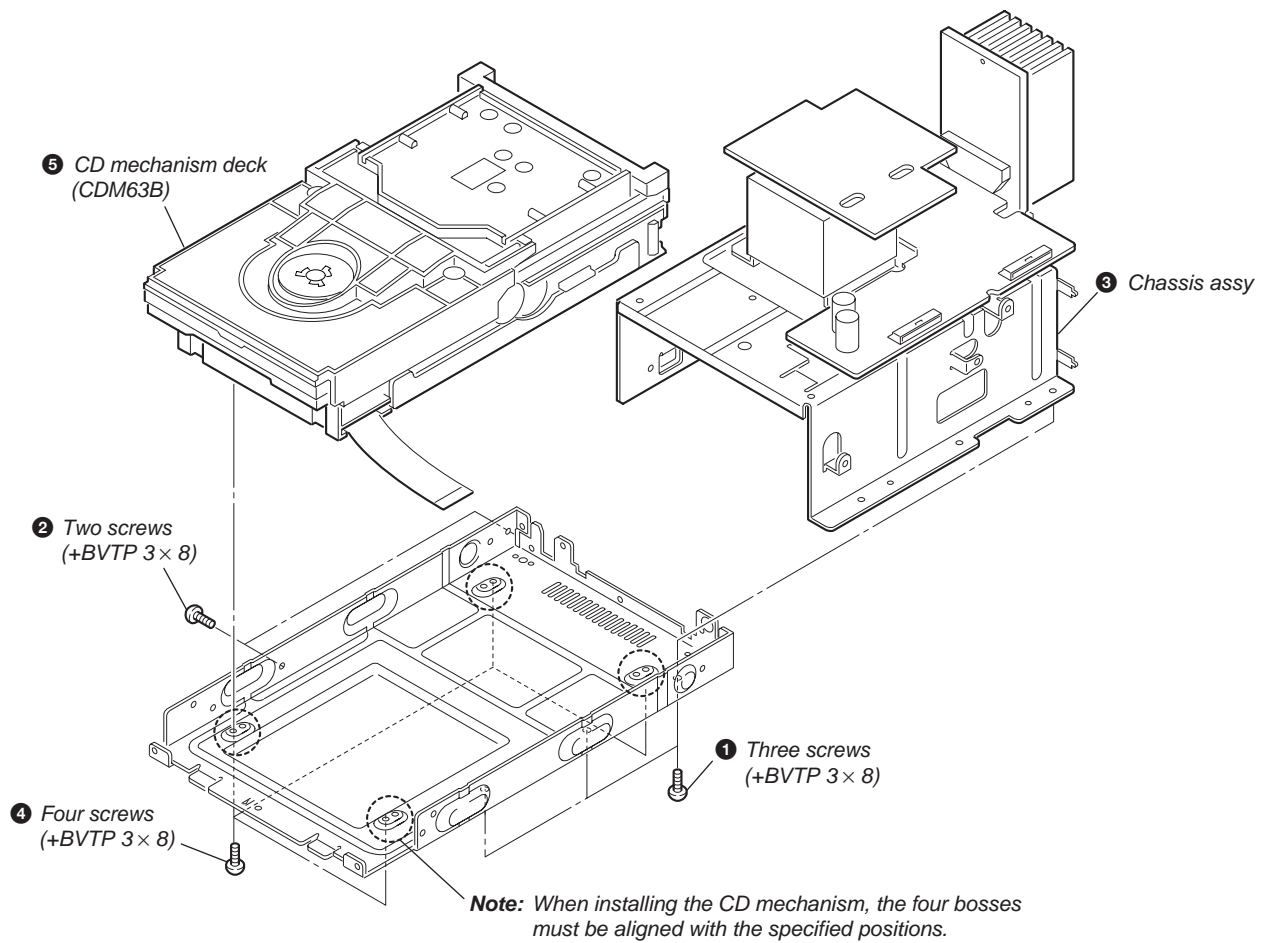
## 3-12. BACK PANEL, MAIN BOARD



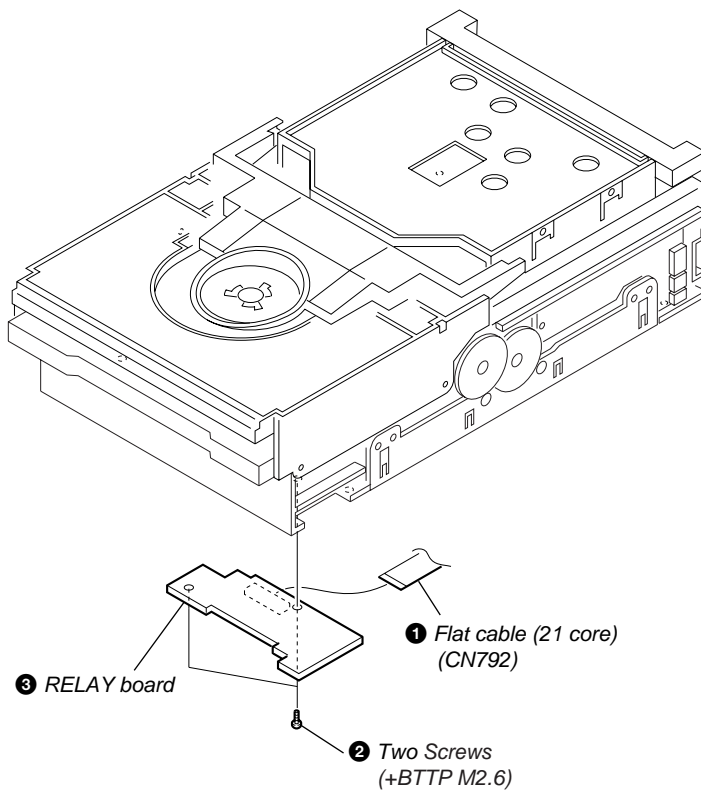
## 3-13. AMP BOARD, POWER TRANSFORMER



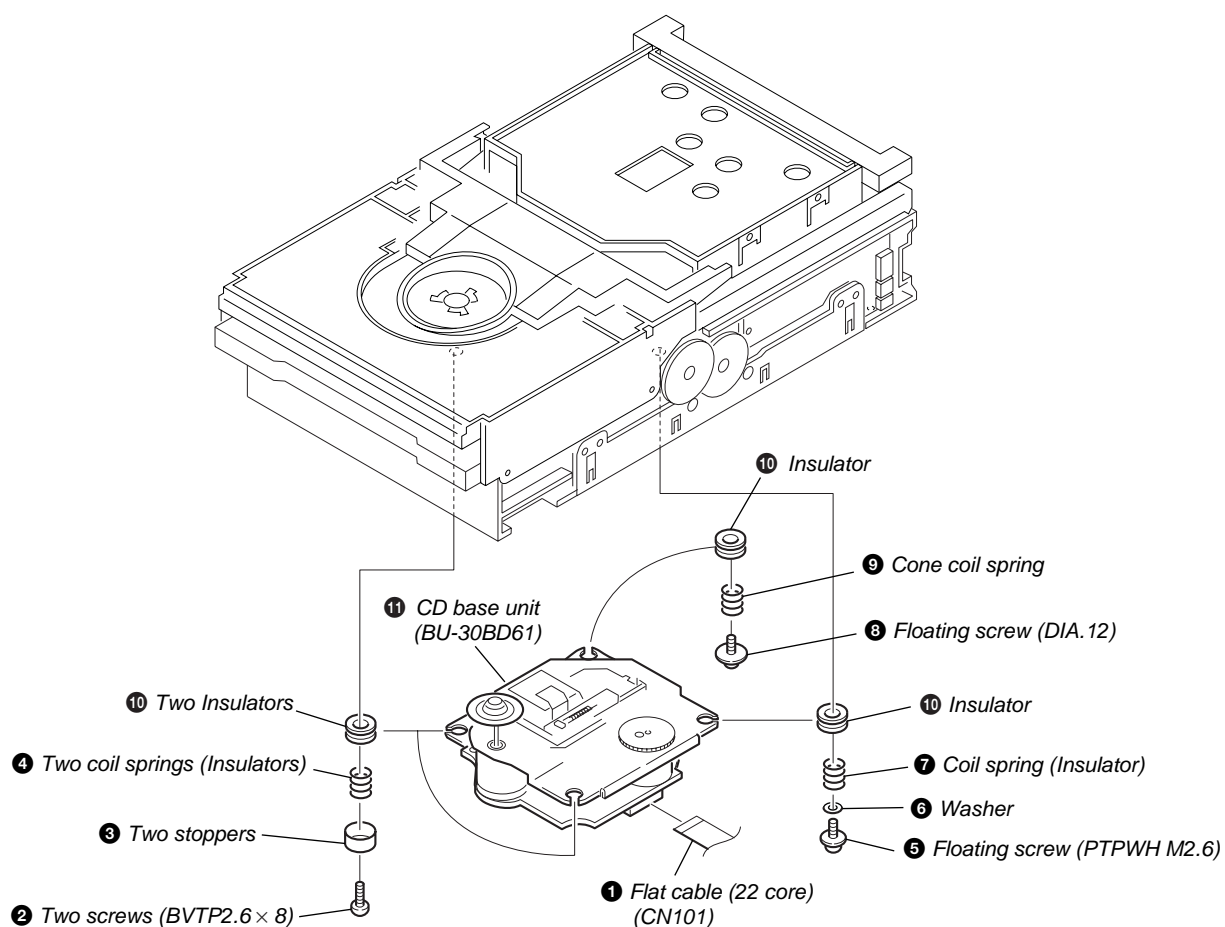
## 3-14. CD MECHANISM



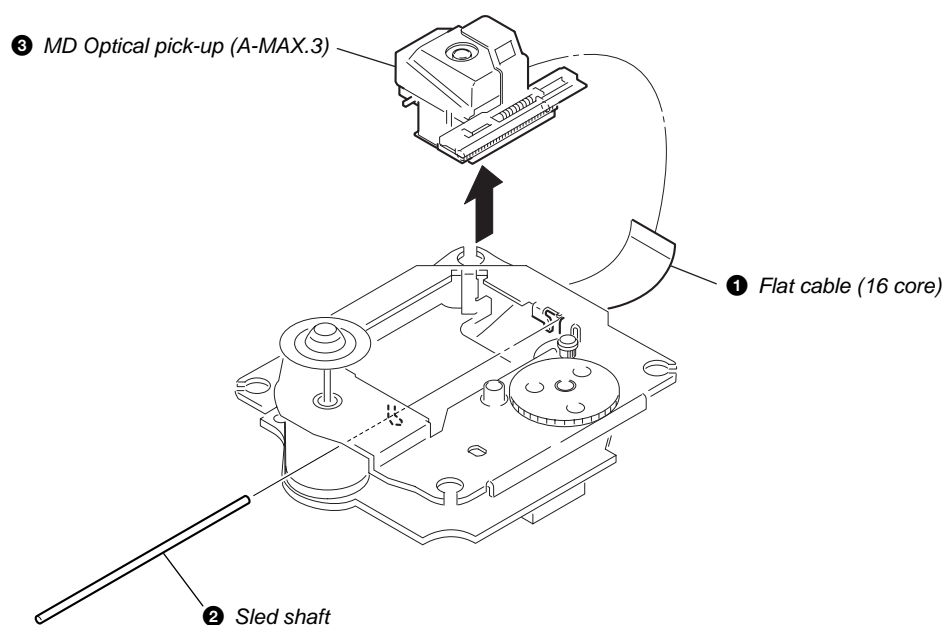
## 3-15. RELAY BOARD



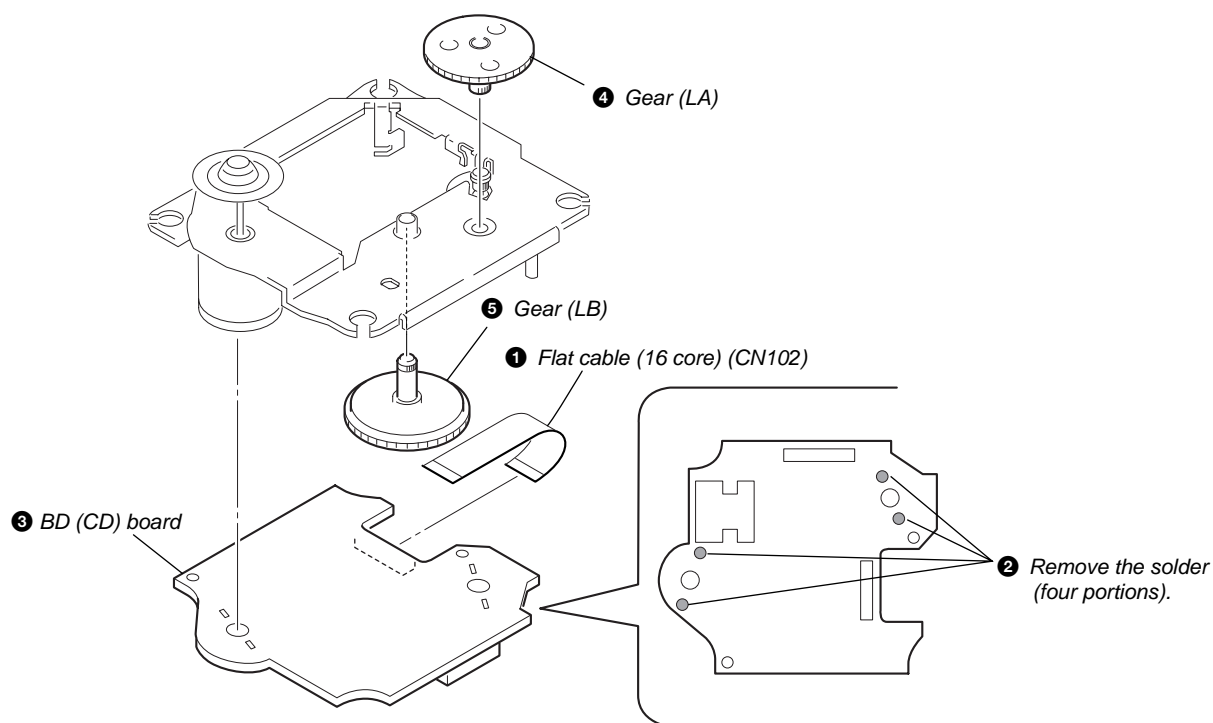
## 3-16. CD BASE UNIT (BU-30BD61)



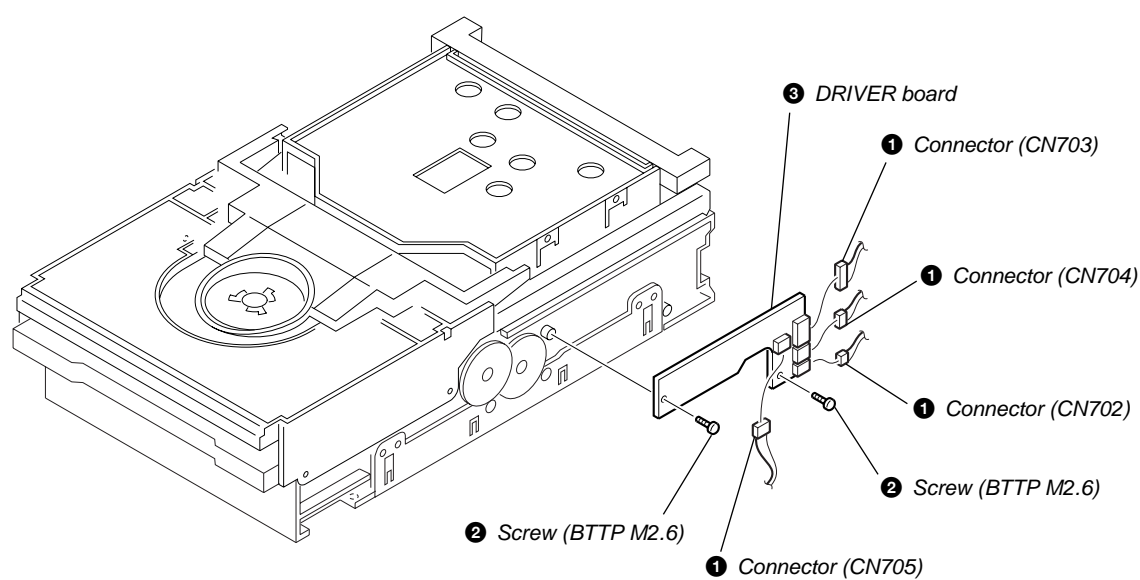
## 3-17. CD OPTICAL PICK-UP (A-MAX.3)



## 3-18. BD (CD) BOARD

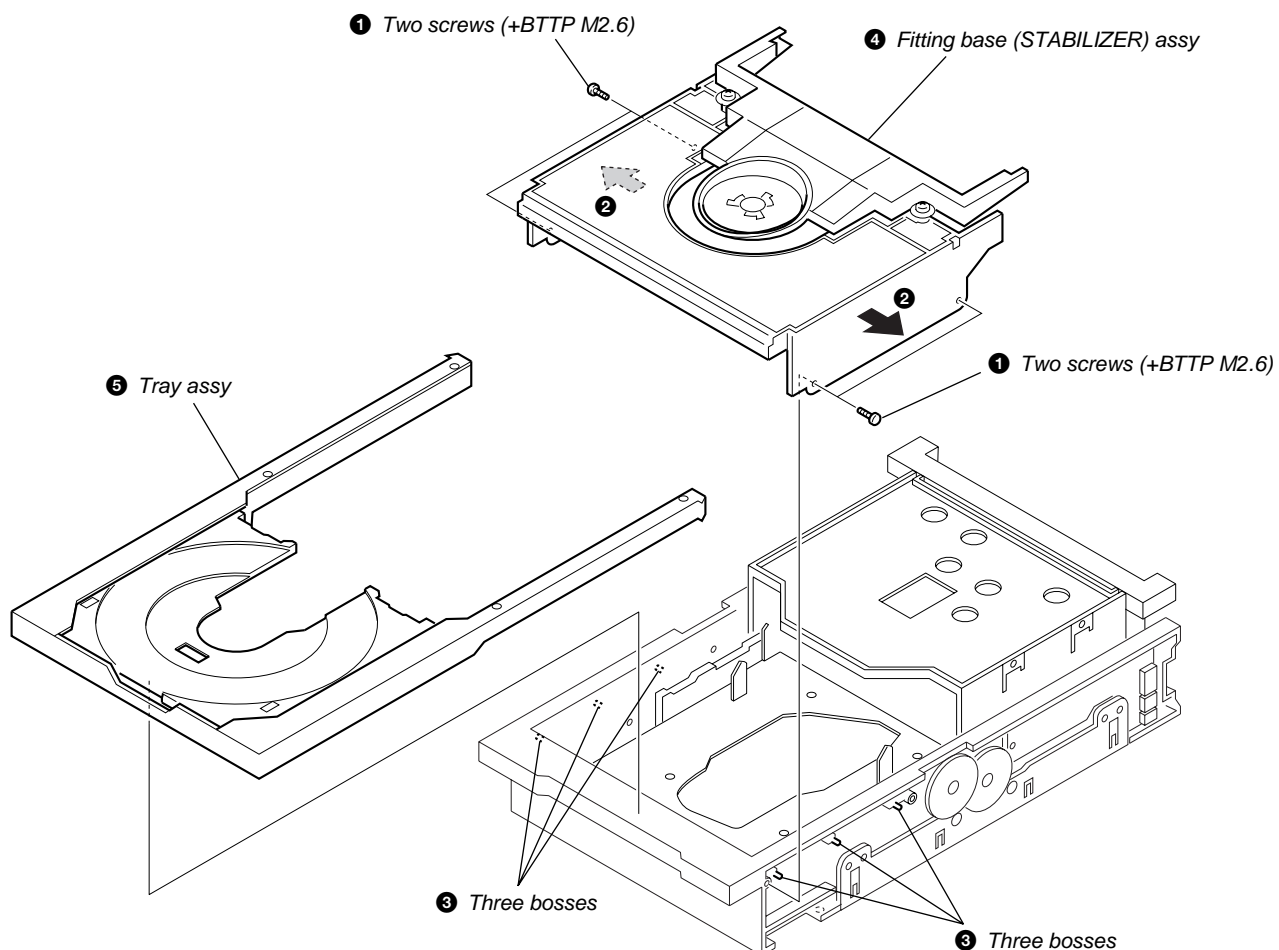


## 3-19. DRIVER BOARD

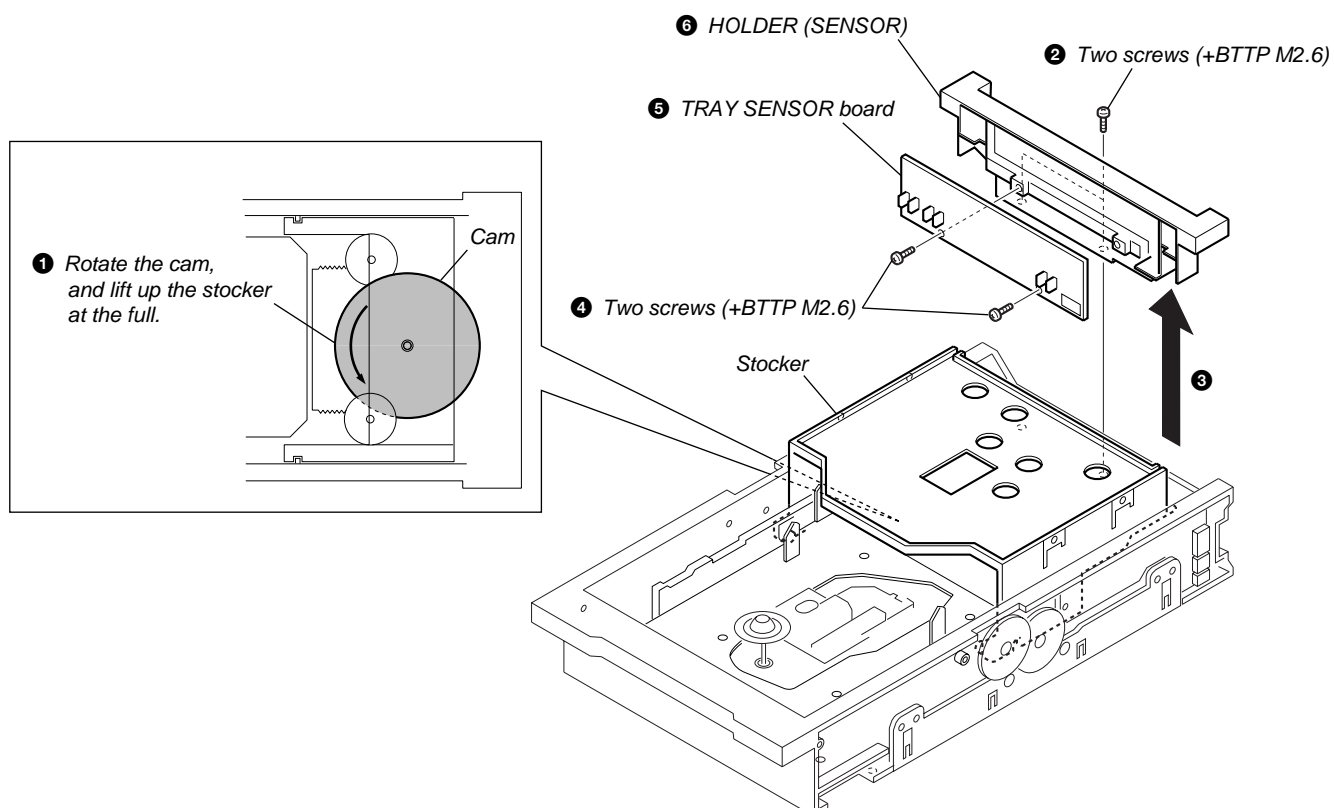




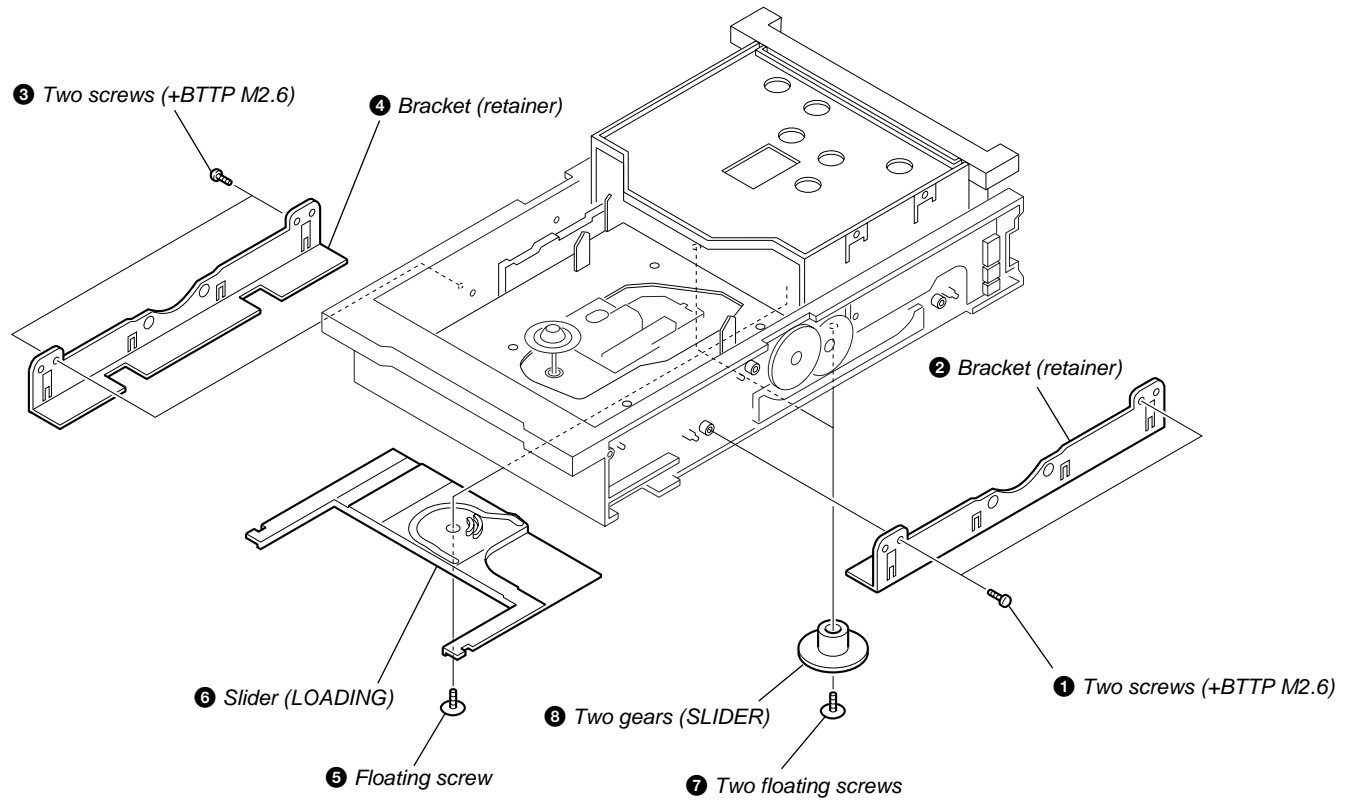
## 3-20. FITTING BASE (STABILIZER) ASSY, TRAY ASSY



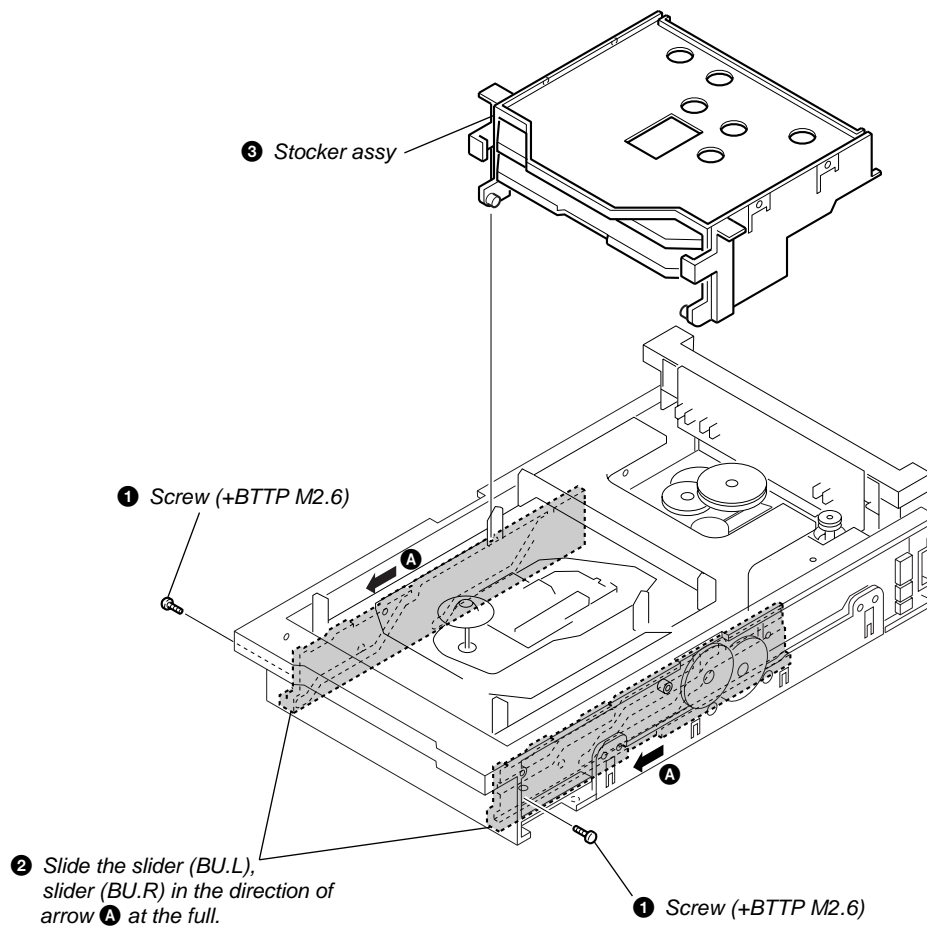
## 3-21. TRAY SENSOR BOARD

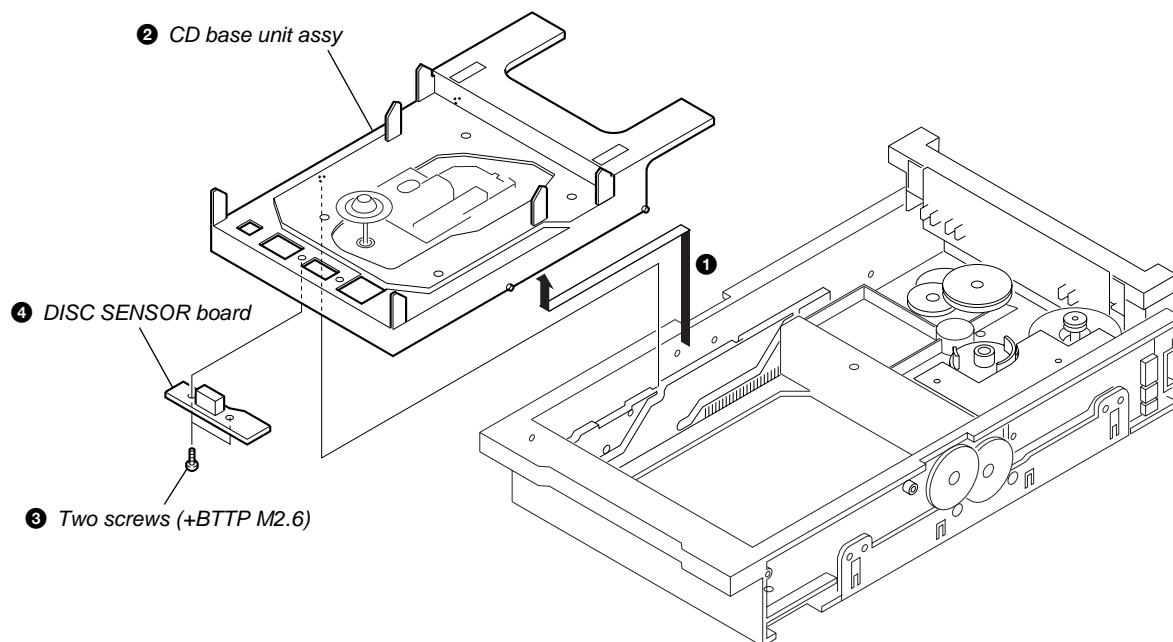
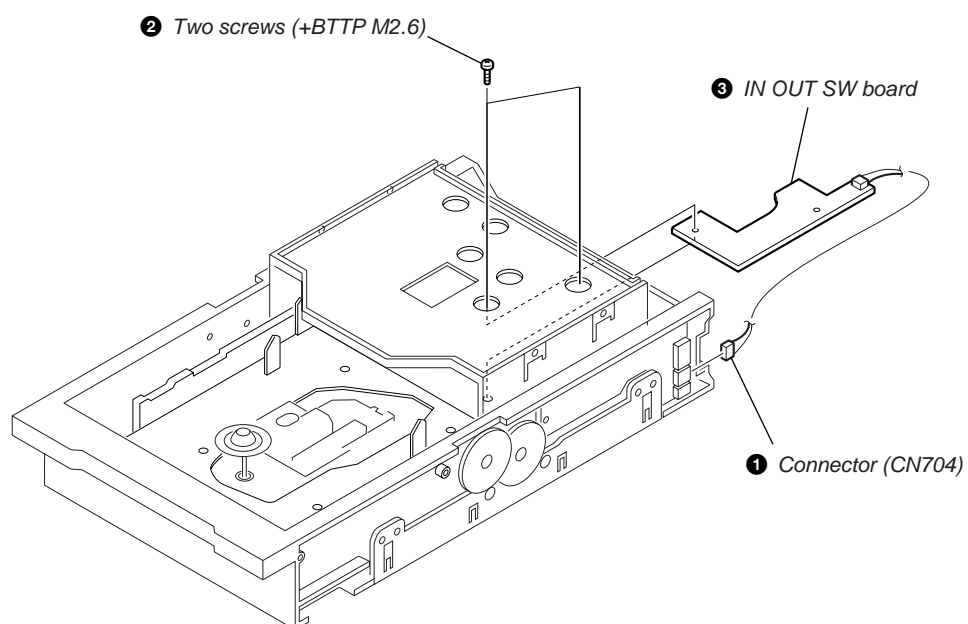


## 3-22. SLIDER (LOADING), GEAR (SLIDER)

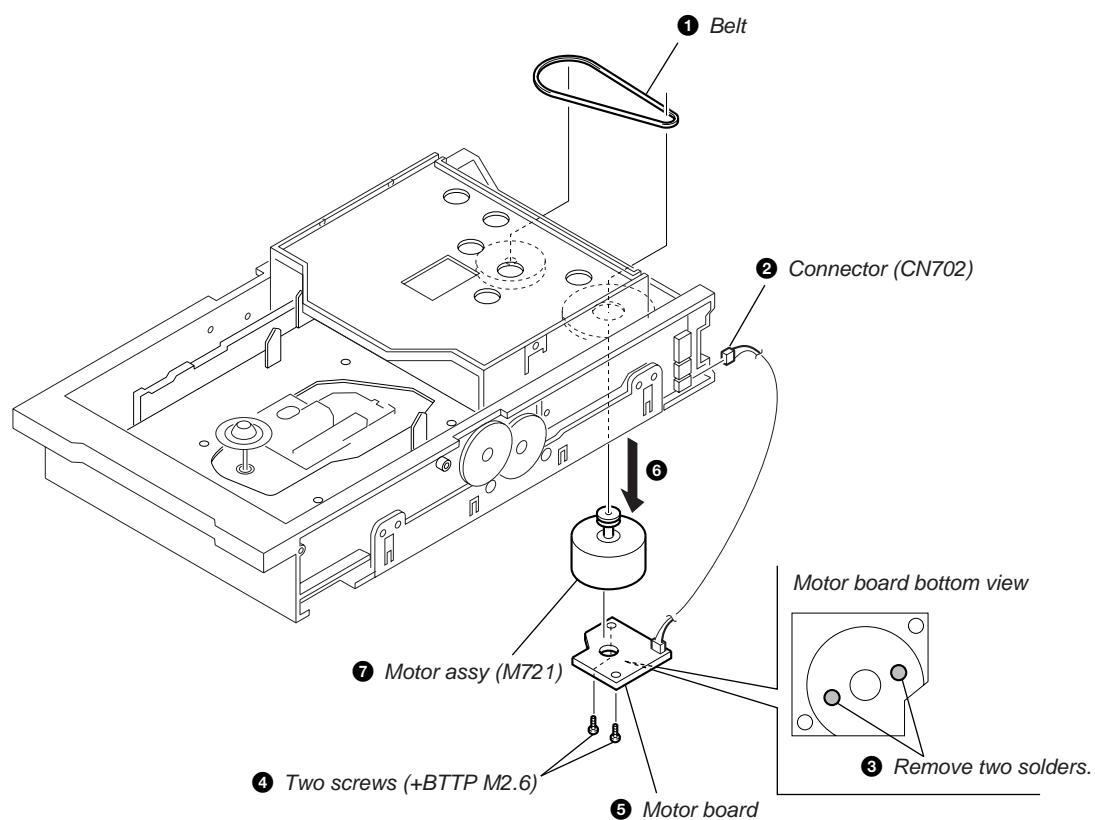


## 3-23. STOCKER ASSY



**3-24. DISC SENSOR BOARD****3-25. IN OUT SW BOARD**

## 3-26. MOTOR ASSY (M721), MOTOR BOARD






## SECTION 4 TEST MODE

### [CD Ship Mode]

- This mode moves the optical pick-up to the position durable to vibration. Use this mode when returning the set to the customer after repair.









#### Procedure:

- Press  button to turn the set ON.
- Press  button and  button simultaneously.
- After the "STANDBY" display blinks six times, a message "LOCK" is displayed on the fluorescent indicator tube, and the CD ship mode is set.

### [GC Test Mode]

- This mode is used to check the software version, FL tube, LED, keyboard and VACS.






#### Procedure:



- Press three buttons , , and  simultaneously.
- LEDs and fluorescent indicator tube are all turned on.
- When you want to enter the software version display mode, press . The model number and destination are displayed.
- Each time  is pressed, the display changes starting from MC version, GC version, CD version, CDD version, CDM version, BD version, ST version, TA version, TM version, TC version and MD version in this order, and returns to the model number and destination display.
- Press  button, and the key check mode is activated.
- In the key check mode, the fluorescent indicator tube displays "K 0 J 0 V 0". Each time a button is pressed, "K 0" value increases. However, once a button is pressed, it is no longer taken into account.  
"V 0" value increases like 1, 2, 3 ... if rotating  knob in "+" direction, or it decreases like 0, 9, 8 ... if rotating in "-" direction.
- Also when  is pressed after lighting of all LEDs and FL tubes, value of VACS appears.
- To exit from this mode, press three buttons in the same manner as step 1, or disconnect the power cord.

### [MC Test Mode]

- This mode is used to check operations of the respective sections of Amplifier, Tuner, CD and Tape.

#### Procedure:





- Press the  button to turn on the set.
- Press the three buttons of ,  and  simultaneously.
- The "VOLUME" segment flashes.
- Every pressing of  changes the displays in the order of "GEQ MIN" → "GEQ FLAT" → "GEQ MAX" → "GEQ MIN".
- When the VOLUME control knob is turned clockwise even slightly, the sound volume increases to its maximum and a message "VOLUME MAX" appears for two seconds, then the display returns to the original display.
- When the VOLUME control knob is turned counter-clockwise even slightly, the sound volume decreases to its minimum and a message "VOLUME MIN" appears for two seconds, then the display returns to the original display.
- In the test mode, the default-preset channel is called even when the TUNER is selected and an attempt is made to call the preset channel that has been stored in memory, by operating the Shuttle knob. (It means that the memory is cleared.)
- When a tape is inserted in Deck B and recording is started, the input source function selects VIDEO automatically.

- When  button is pressed to stop recording, the Tape (Deck) B is selected and tape is rewound using the  button, tape is rewound, tape is stops at around the record-starting position and playback of the recorded portion of the tape is started. If PAUSE is inserted even once during recording, tape is rewound to the position around the PAUSE position and is played back.
- The cold reset is enforced at the same time.

### [CD Service Mode]

- This mode can run the CD sled motor freely. Use this mode, for instance, when cleaning the optical pick-up.

#### Procedure:





- Press  button to turn the set ON.
- Select the function "CD".
- Press three buttons , , and  simultaneously.
- The CD service mode is selected.
- With the CD in stop status, turn the shuttle knob clockwise to move the optical pick-up to outside track, or turn the shuttle knob counter-clockwise to inside track.
- To exit from this mode, perform as follows:
  - Move the optical pick-up to the most inside track.
  - Press three buttons in the same manner as step 2.

- Note:**
- Always move the optical pick-up to most inside track when exiting from this mode. Otherwise, a disc will not be unloaded.
  - Do not run the sled motor excessively, otherwise the gear can be chipped.

### [CD Ship (Memory Clear) Mode]

- Set the CD ship mode and set the default setup when shipped from the factory at the next AC power on.





#### Procedure:

- Press  button to turn the set ON.
- Select the function "CD".
- Press three buttons ,  and  simultaneously.
- After the "STANDBY" display blinks six times, a message "LOCK" is displayed on the fluorescent indicator tube, and the CD ship mode is set.




### [CD/MD/TAPE Repeat 5 Times Limit Release Mode]

- 5 times limit of repeating CD/MD/TAPE is released.


#### Procedure:

- Press  button to turn the set ON.
- Press three buttons ,  and .
- 5 times limit of repeating CD/MD/TAPE is released.
- Cold reset is performed at power off.








4-1. PRECAUTIONS FOR USE OF TEST MODE


- As loading related operations will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.  
Even if the  button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.  
Therefore, it will be ejected while rotating.  
Be sure to press the  button, and press the  button after the disc stops rotating.

4-1-1. Recording laser emission mode and operating buttons


- Continuous recording mode (CREC 1MODE) (C35)
- Laser power check mode (LDPWR CHECK) (C13)
- Laser power adjustment mode (LDPWR ADJUS) (C04)
- Iop check (Iop Compare) (C27)
- Iop value nonvolatile writing (Iop NV Save) (C06)
- Traverse (MO) check (EF MO CHECK) (C14)
- Traverse (MO) adjustment (EF MO ADJUS) (C07)
- When pressing the  button.

4-2. SETTING THE TEST MODE

The following are two methods of entering the test mode.  
**Procedure:** Connect the mains lead to the mains while pressing the , , and  buttons together, then release the , , and  buttons simultaneously.  
When the test mode is set, “[Check]” will be displayed. Move  to switch between the following three groups;  
... ↔ Check ↔ Service ↔ Develop ↔ ....


**NOTE:** Do not use the test mode in the [Develop] group.  
If used, the unit may not operate normally.  
If the [Develop] group is set accidentally, press the  button, immediately to exit the [Develop] group.

4-3. EXITING THE TEST MODE


Press the  button. The disc is ejected when loaded, and “Initialize” display blinks, and the STANDBY state is set.

4-4. BASIC OPERATIONS OF THE TEST MODE

Operate using the ,  button,  button,  button.

Function name	Function
MENU/NO button	Cancel or move to top hierarchy
ENTER/YES button	Set
 (Left or Right)	Select
REC MODE button	Set submenu

#### 4-5. SELECTING THE TEST MODE

There are 26 types of test modes as shown below. The groups can be switched by moving . After selecting the group to be used, press the **[ENTER/YES]** button. After setting a certain group, move the multi-stick to switch between these modes.

Refer to “Group” in the table for details selected.

All adjustments and checks during servicing can be performed in the test mode in the Service group.

**NOTE:** Do not use the test mode in the [Develop] group.



If used, the unit may not operate normally.


If the [Develop] group is set accidentally, press the **[MENU/NO]** button, immediately to exit the [Develop] group.

Display	No.	Details	Mark	Group	
				Check	Service
AUTO CHECK	C01	Automatic self-diagnosis			○
Err Display	C02	Error history display, clear			○
TEMP ADJUS	C03	Temperature compensation offset adjustment			○
LDPWR ADJUS	C04	Laser power adjustment			○
Iop Write	C05	Iop data writing			○
Iop NV Save	C06	Writes current Iop value in read nonvolatile memory using microprocessor			○
EF MO ADJUS	C07	Traverse (MO) adjustment			○
EF CD ADJUS	C08	Traverse (CD) adjustment			○
FBIAS ADJUS	C09	Focus bias adjustment			○
AG Set (MO)	C10	Focus, tracking gain adjustment (MO)			○
AG Set (CD)	C11	Focus, tracking gain adjustment (CD)			○
TEMP CHECK	C12	Temperature compensation offset check		○	○
LDPWR CHECK	C13	Laser power check		○	○
EF MO CHECK	C14	Traverse (MO) check		○	○
EF CD CHECK	C15	Traverse (CD) check		○	○
FBIAS CHECK	C16	Focus bias check		○	○
ScurveCHECK	C17	S-curve check	×	○	
VERIFYMODE	C18	Nonvolatile memory check	×	○	
DETRK CHECK	C19	Detrack check	×	○	
0920 CHECK	C25	Most circumference check	×	○	
Iop Read	C26	Iop data display		○	○
Iop Compare	C27	Comparison with initial Iop value written in nonvolatile memory		○	○
ADJ CLEAR	C28	Initialization of nonvolatile memory for adjustment values			○
INFORMATION	C31	Display of microprocessor version, etc.		○	○
CPLAY1MODE	C34	Continuous playback mode		○	○
CREC 1MODE	C35	Continuous recording mode		○	○

- For details of each adjustment mode, refer to “6. Electrical Adjustments”.  
For details of “Err Display”, refer to “Self-Diagnosis Function” on page 3.
- If a different mode has been selected by mistake, press the **[MENU/NO]** button, to exit that mode.
- Modes with (X) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the **[MENU/NO]** button, to exit the mode immediately.

#### 4-5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
  - ① Set the disc in the unit. (Whichever recordable discs or discs for playback only are available.)
  - ② Move  and display “CPLAY1MODE”(C34).
  - ③ Press the  button to change the display to “CPLAY1MID”.
  - ④ When access completes, the display changes to “C = 0000 AD = 00”.



**Note :** The numbers “0” displayed show you error rates and ADER.
2. Changing the parts to be played back
  - ① Press the  button during continuous playback to change the display as below.

“CPLAY1MID” → “CPLAY1OUT” → “CPLAY1IN”

↑

When pressed another time, the parts to be played back can be moved.



  - ② When access completes, the display changes to “C = 0000 AD = 00”.


**Note :** The numbers “0” displayed show you error rates and ADER.
3. Ending the continuous playback mode
  - ① Press the  button. The display will change to “CPLAY1MODE”(C34).
  - ② To remove the disc, press the  button.

**Note :** The playback start addresses for IN, MID, and OUT are as follows.

IN	40h cluster
MID	300h cluster
OUT	700h cluster

#### 4-5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/palyback check.)

1. Entering the continuous recording mode
  - ① Set a recordable disc in the unit.
  - ② Move  and display “CREC 1MODE” (C35).
  - ③ Press the  button to change the display to “CREC 1MID”.
  - ④ When access completes, the display changes to “CREC1 (0000)” and **REC** lights up.



**Note :** The numbers “0” displayed shows you the recording position addresses.
2. Changing the parts to be recorded
  - ① When the  button is pressed during continuous recording, the display changes as below.

“CREC 1MID” → “CREC 1OUT” → “CREC 1IN”

↑


When pressed another time, the parts to be recorded can be changed. **REC** goes off.

  - ② When access completes, the display changes to “CREC 1(0000)” and **REC** lights up.

**Note :** The numbers “0” displayed shows you the recording position addresses.
3. Ending the continuous recording mode
  - ① Press the  button. The display changes to “CREC 1MODE” (C35 ) and **REC** goes off.
  - ② To remove the disc, press the  button.

**Note 1 :** The recording start addresses for IN, MID, and OUT are as follows.

IN	40h cluster
MID	300h cluster
OUT	700h cluster

**Note 2 :** Press the  button can be used to stop recording anytime.

**Note 3 :** Do not perform continuous recording for long periods of time above 5 minutes.

**Note 4 :** During continuous recording, be careful not to apply vibration.

#### 4-6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
PLAY	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.
MD ▷	Stops continuous playback and continuous recording.
▷▷ (FF)	The sled moves to the outer circumference only when this is pressed.
◁◁ (FR)	The sled moves to the inner circumference only when this is pressed.
PLAY MODE	Switches the spindle servo mode (CLV S ↔ CLV A).
EJECT	Ejects the disc.
REPEAT	Exits the test mode. (When No disc)



#### 4-7. MEANINGS OF OTHER DISPLAYS

Display	Contents	
	When Lit	When Off
LP2	Servo ON	Servo OFF
LP4	Tracking servo OFF	Tracking servo ON
(LED)	Recording mode ON	Recording mode OFF
SYNC	CLV low speed mode	CLV normal mode
LEVEL-SYNC	ABCD adjustment completed	
OVER	Tracking offset cancel ON	Tracking offset cancel OFF
TOC	Tracking auto gain OK	
REPEAT	Focus auto gain OK	
X1	CLV S	CLV A
MONO	CLV LOCK	CLV UNLOCK

#### 4-8. AUTOMATIC SELF-DIAGNOSIS FUNCTION

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up.

To perform this test mode, the laser power must first be checked.

Perform AUTO CHECK after the laser power check and Iop check.

##### Procedure

1. Press the **[ENTER/YES]** button. If “LDPWR” is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop compare, and then repeat from step 1.
2. If a disc is in the mechanical deck, it will be ejected forcibly.  
“DISC IN” will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
3. If a disc is loaded at step 2, the check will start automatically.
4. When “XX CHECK” is displayed, the item corresponding to XX will be performed.  
When “06 CHECK” completes, the disc loaded at step 2 will be ejected. “DISC IN” will be displayed. Load the check disc (MD) TDYS-1.
5. When the disc is loaded in step 4, the check will automatically be resumed from “07 CHECK”.
6. After completing to test item 12, check OK or NG will be displayed. If all items are OK, “CHECK ALL OK” will be displayed. If any item is NG, it will be displayed as “NG:xxxx”.

When “CHECK ALL OK” is displayed, it means that the optical pick-up is normal. Check the operations of the other spindle motor, thread motor, etc.

When displayed as “NG:xxxx”, it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

#### 4-9. INFORMATION

Display the software version.

##### Procedure

1. If displayed as “INFORMATION”, press the **[ENTER/YES]** button.
2. The software version will be displayed.
3. Press the **[MENU/NO]** button is lit to end this mode.

#### 4-10. WHEN MEMORY NG IS DISPLAYED

If the nonvolatile memory data is abnormal, “E001”/“MEMORY NG” will be displayed so that the MD deck does not continue operations. In this case, set the test mode promptly and perform the following procedure.

##### Procedure

1. Set the test mode. (Refer to 4-2.)
2. Normally a message for selecting the test mode will be displayed. However if the nonvolatile memory is abnormal, the following will be displayed. “INIT EEP?”
3. Press the **[ ]** button and **[ ]** button together.
4. Move **[◀▶]** and select MDM-7B.
5. Press the **[REC MODE]** button. If the nonvolatile memory is successfully overwritten, the normal test mode will be set and a message to select the test mode will be displayed.

## SECTION 5 MECHANICAL ADJUSTMENTS

### Precaution

1. Clean the following parts with a denatured alcohol-moistened swab:
 

record/playback heads	pinch rollers
erase head	rubber belts
capstan	idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

### Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	3.04 – 6.96 N • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	0.20 – 0.58 N • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
REV	CQ-102RC	3.04 – 6.96 N • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	0.20 – 0.58 N • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	6.97 – 14.02 N • m (71 to 143 g • cm) (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	0.98 N • m or more (100 g or more) (3.53 oz or more)
REV tension	CQ-403R	0.98 N • m or more (100 g or more) (3.53 oz or more)

## SECTION 6 ELECTRICAL ADJUSTMENTS

### DECK SECTION

**0 dB=0.775V**

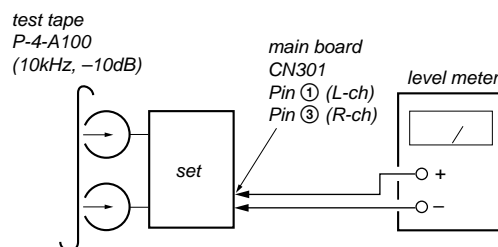
1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

Tape	Signal	Used for
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment

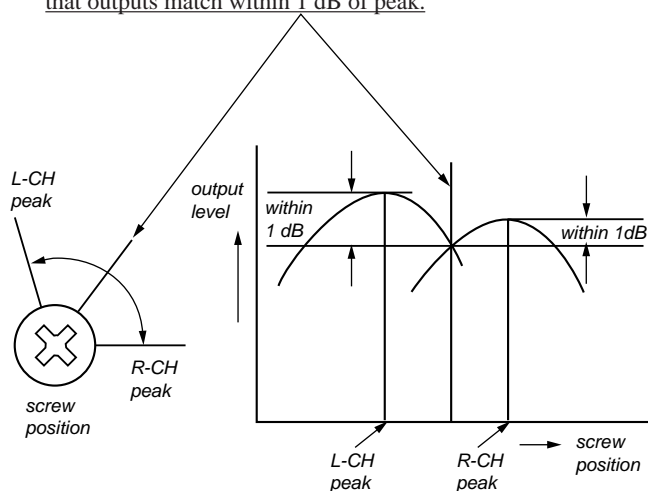
### Record/Playback Head Azimuth Adjustment

#### Procedure:

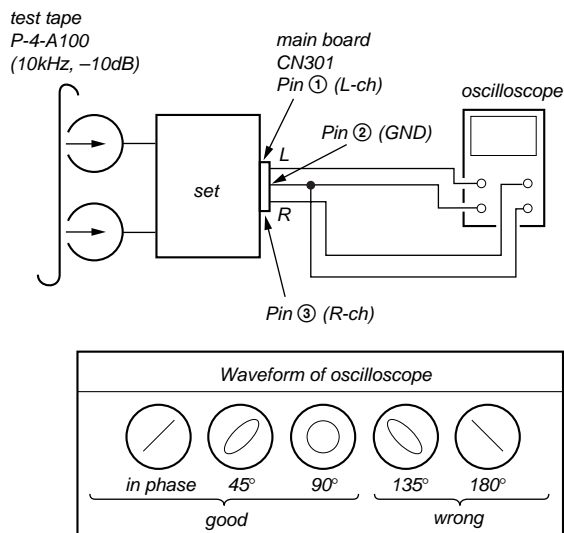
1. Mode : Playback



2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.



## 3. Mode: Playback



4. After the adjustments, apply suitable locking compound to the parts adjusted.

**Adjustment Location:** Record/Playback/Erase Head

## Tape Speed Check

**Note:** Set the test mode using the following method and begin tape speed adjustment.

**Procedure:**

With the power turned ON, press the button, button, and button simultaneously.

(The “VOLUME” on the fluorescent display tube will blink while in the test mode.)

To exit the test mode, press the button.

1. Insert the WS-48B into deck.
2. Press the button of deck.
3. Check the reading of frequency counter becomes  $3000 \pm 15$  Hz.

**Sample Value of Wow and flutter**

W.RMS (JIS) less than 0.3%  
(test tape: WS-48B)

## Record Bias Adjustment

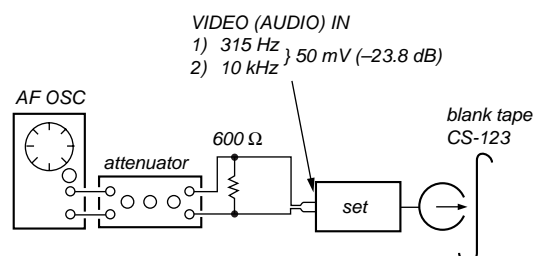
**Procedure:****INTRODUCTION**

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the “REC memory mode” which rewinds only the recorded portion and playback is set.

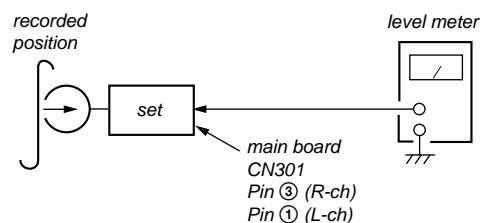
This “REC memory mode” is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.

(After recording, press the button without stopping will return to the position where recording was started.)

1. Press button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck, press the button, and then press the button to start recording.
3. Mode: Record



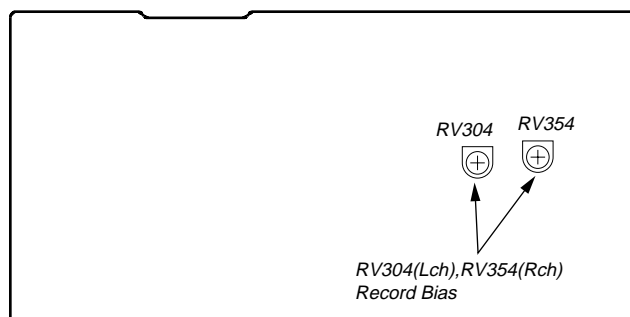
## 4. Mode: Playback



5. Confirm playback the signal recorded in step 2 become adjustment level as follows.  
If these levels do not adjustment level, adjust the RV304 (L-CH) and RV354 (R-CH) on the TC board to repeat steps 3 and 4.

**Adjustment level:** The playback output of 10 kHz level difference against 315 Hz reference should be  $0 \pm 0.5$  dB.

**Adjustment Location:**

**[TC BOARD]**

## Record Level Adjustment


### Procedure:

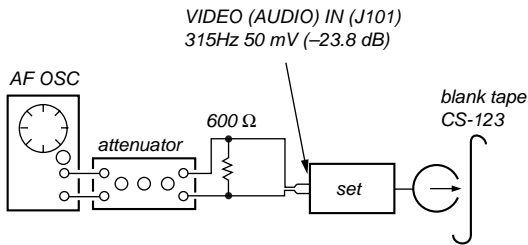
### INTRODUCTION

When set to the test mode performed in **Tape Speed Adjustment**, when the tape is rewound after recording, the “REC memory mode” which rewinds only the recorded portion and playback is set.

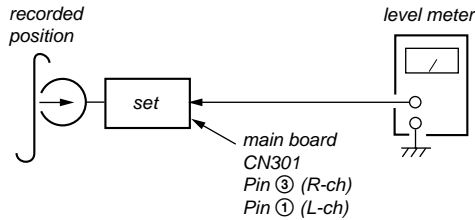
This “REC memory mode” is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.

(After recording, press the  button without stopping will return to the position where recording was started.)

1. Press **FUNCTION** button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck, press the **TAPE REC PAUSE/START** button, and then press the  button to start recording.
3. Mode: Record



4. Mode: Playback



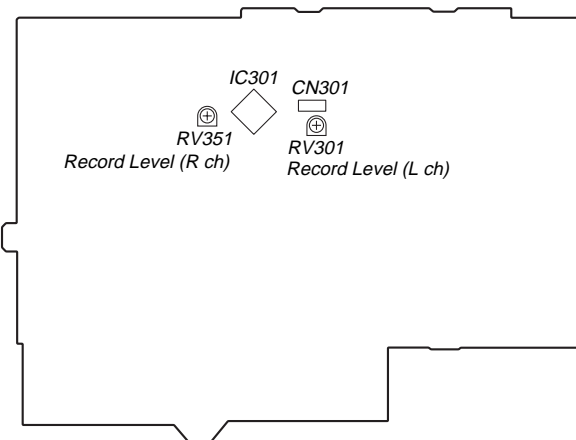
5. Confirm playback the signal recorded in step 2 become adjustment level as follows.  
If these levels do not adjustment level, adjust the RV301 (L-CH) and RV351 (R-CH) on the MAIN board to repeat steps 3 and 4.

### Adjustment level:

CN301 playback level: 47.2 to 53.0 mV (-24.3 to -23.3 dB)

### Adjustment Location:

### [MAIN BOARD]

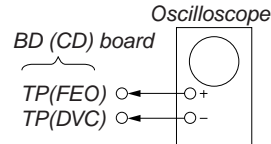


## CD SECTION

### Note :

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

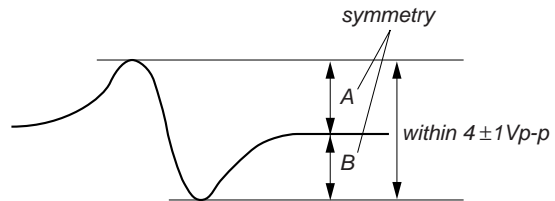
### S-Curve Check



### Procedure :

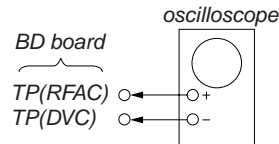
1. Connect oscilloscope to TP (FEO).
2. Connect between TP (FEI) and TP (VC) by lead wire.
3. Turn Power switch on.
4. Load a disc (YEDS-18) and actuate the focus search. (In consequence of open and close the disc tray, actuate the focus search)
5. Confirm that the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within  $4 \pm 1$  Vp-p.

S-curve waveform



7. After check, remove the lead wire connected in step 2.
- Note :
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
  - Take sweep time as long as possible and light up the brightness to obtain best waveform.

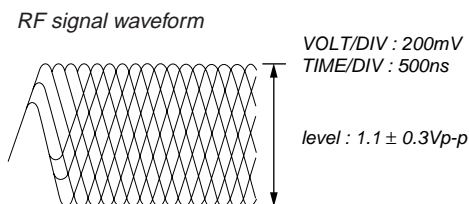
### RF Level Check



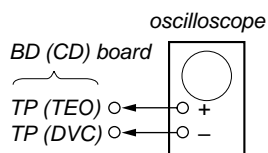
### Procedure :

1. Connect oscilloscope to TP (RFAC).
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.
5. Measure the RFDC in the same way.

**Note:** Clear RF signal waveform means that the shape “◇” can be clearly distinguished at the center of the waveform.

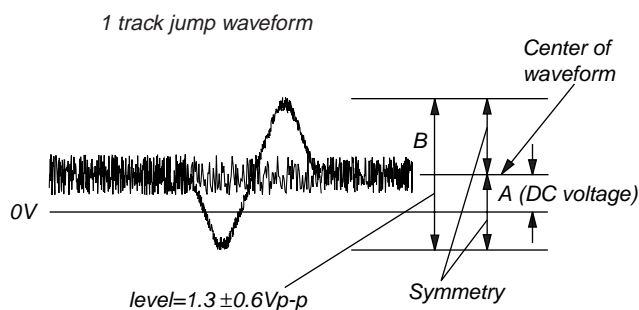


### E-F Balance (1 Track jump) Check



#### Procedure:

1. Connect oscilloscope to TP (TEO) and TP (DVC) board.
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Press the button. (Becomes the 1track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.



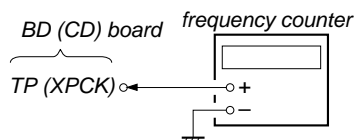
**Specification level:**  $\frac{A}{B} \times 100 = \text{less than } \pm 22\%$

6. After check, remove the lead wire connected in step 1.

### RF PLL Free-run Frequency

#### Procedure :

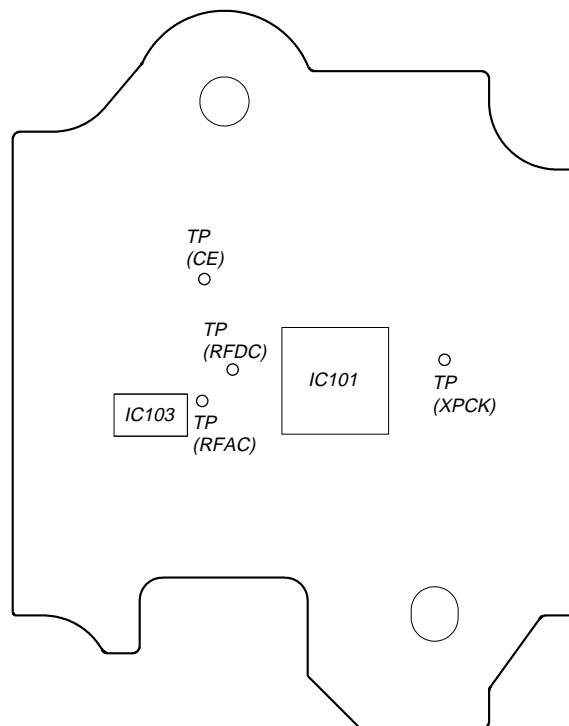
1. Connect frequency counter to test point (XPCK) with lead wire.



2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track.  
Confirm that reading on frequency counter is 4.3218MHz.

#### Adjustment Location :

[ BD (CD) BOARD ] — SIDE B —

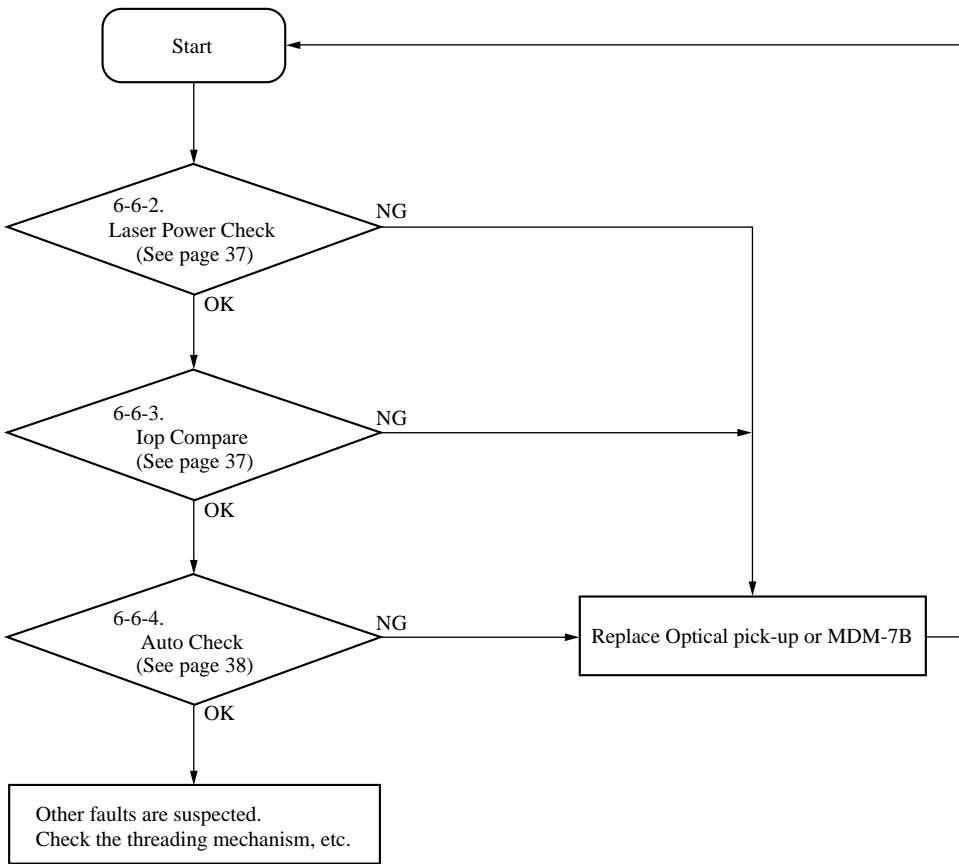


MD SECTION

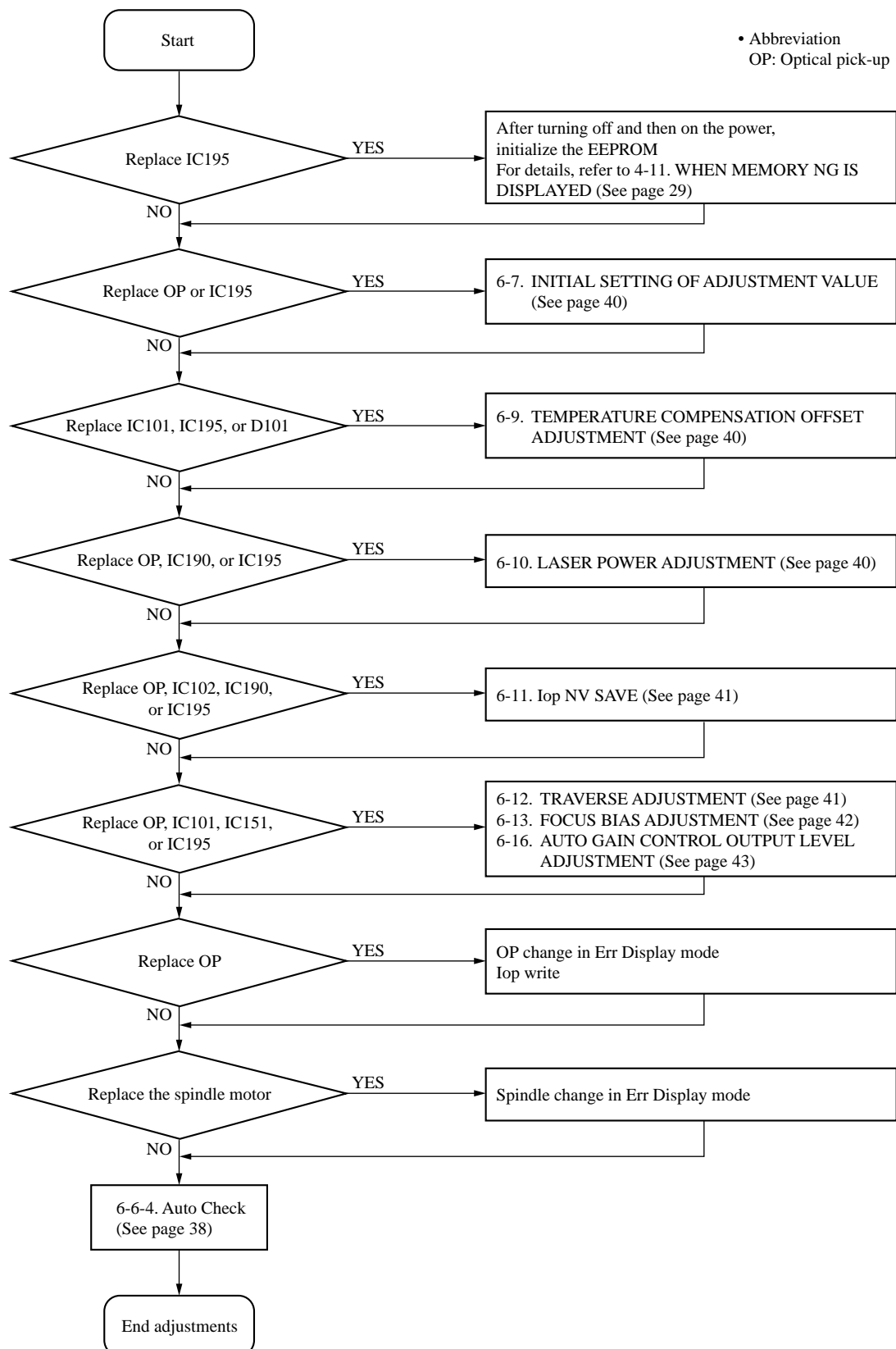
6-1. PARTS REPLACEMENT AND ADJUSTMENT

If malfunctions caused by Optical pick-up such as sound skipping are suspected, follow the following check.

Check before replacement



## Adjustment flow

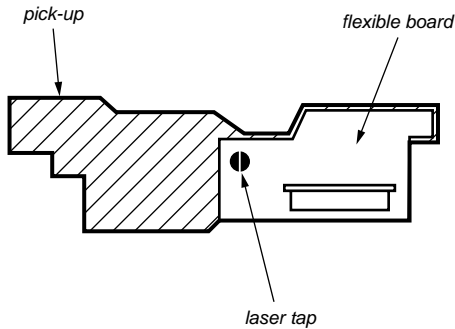


## 6-2. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

## 6-3. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260B)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



**Optical pick-up flexible board**

## 6-4. PRECAUTIONS FOR ADJUSTMENTS

- 1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.
- 2) Set the test mode when performing adjustments.  
After completing the adjustments, exit the test mode.  
Perform the adjustments and checks in “group S” of the test mode.
- 3) Perform the adjustments to be needed in the order shown.
- 4) Use the following tools and measuring devices.
  - Check Disc (MD) TDYS-1 (Parts No. 4-963-646-01)
  - Test Disk (MDW-74/GA-1) (Parts No. 4-229-747-01)
  - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
 or  
 MD Laser power meter 8010S (Parts No. J-2501-145-A)
  - Oscilloscope (Measure after performing CAL of prove.)
  - Digital voltmeter
  - Thermometer
  - Jig for checking BD (MD) board waveform (Parts No. : J-2501-196-A)
- 5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.  
(VC and ground will become short-circuited.)
- 6) Using the above jig enables the waveform to be checked without the need to solder.  
(Refer to Servicing Note on page 8.)
- 7) As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

Adjustment	Parts to be replaced						
	Optical Pick-up	IC101	IC102	IC151	IC190	IC195	D101
6-7. Initial setting of adjustment values	○	×	×	×	×	○	×
6-8. Recording and displaying the Iop information	○	×	×	×	×	○	×
6-9. Temperature compensation offset adjustment	×	○	×	×	×	○	○
6-10. Laser power adjustment	○	×	×	×	○	○	×
6-11. Iop NV Save	○	×	○	×	○	○	×
6-12. Traverse adjustment	○	○	×	○	×	○	×
6-13. Focus bias adjustment	○	○	×	○	×	○	×
6-16. Auto gain control output level adjustment	○	○	×	○	×	○	×
6-6-4. Auto Check	○	○	×	○	○	○	×



## 6-5. USING THE CONTINUOUSLY RECORDED DISC

\* This disc is used in focus bias adjustment and error rate check.  
The following describes how to create a continuous recording disc.

1. Insert a disc (blank disc) commercially available.
2. Move **[◀▶/▶▶]** and display "CREC 1MODE"(C35).
3. Press the **[ENTER/YES]** button again to display "CREC 1MID".  
Display "CREC (0300)" and start to recording.
4. Complete recording within 5 minutes.
5. Press the **[MENU/NO]** button and stop recording.
6. Press the **[▲]** button and remove the disc.

The above has been how to create a continuous recorded data for the focus bias adjustment and error rate check.

### Note :

- Be careful not to apply vibration during continuous recording.

## 6-6. CHECKS PRIOR TO REPAIRS

These checks are performed before replacing parts according to "approximate specifications" to determine the faulty locations.

### 6-6-1. Temperature Compensation Offset Check

When performing adjustments, set the internal temperature and room temperature to 22 to 28°C.

Checks cannot be performed properly if performed after some time from power ON due to the rise in the temperature of the IC and diode, etc. So, perform the checks again after waiting some time.

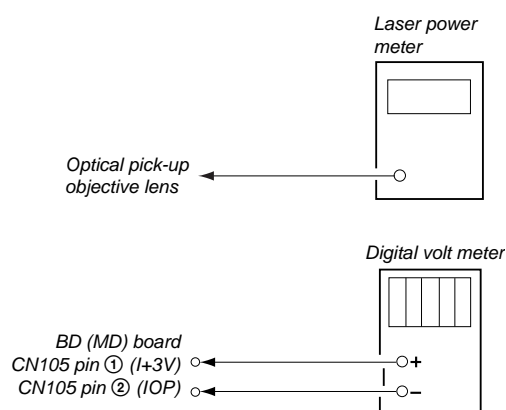
#### Checking Procedure:

1. Move **[◀▶/▶▶]** to display "TEMP CHECK"(C12).
2. Press the **[ENTER/YES]** button.
3. "T=@@ (##) [OK]" should be displayed. If "T=@@ (##) [NG]" is displayed, it means that the results are bad.  
(@@ indicates the current value set, and ## indicates the value written in the non-volatile memory.)

### 6-6-2. Laser Power Check

Before checking, check the Iop value of the optical pick-up.  
(Refer to 6-8. Recording and Displaying Iop Information.)

#### Connection :



#### Checking Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (If cannot set properly, press the **[◀▶]** or **[▶▶]** button and move the optical pick-up.)  
Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (IOP).
2. Then, move **[◀▶/▶▶]** and display "LDPWR CHECK" (C13).
3. Press the **[ENTER/YES]** button once and display "LD 0.9 mW \$ 0.00". Check that the reading of the laser power meter become 0.84 to 0.92 mW.
4. Press the **[ENTER/YES]** button once more and display "LD 7.0 mW \$ 0.00". Check that the reading the laser power meter and digital volt meter satisfy the specified value.

#### Specified Value :

Laser power meter reading :  $7.0 \pm 0.2$  mW

Digital voltmeter reading : Optical pick-up displayed value  $\pm 10\%$

(Optical pick-up label)

KMS260B  
20101  
H0576

(For details of the method for checking this value, refer to "6-8. Recording and Displaying Iop Information".)



Iop = 57.6 mA in this case

Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)

5. Press the **[MENU/NO]** button and display "LDPWR CHECK" (C13) and stop the laser emission.  
(The **[MENU/NO]** button, it is effective at all times to stop the laser emission.)

**Note 1:** After step 4, each time the **[ENTER/YES]** button is pressed, the display will be switched between "LD 0.7 mW \$ 0.00", "LD 6.2 mW \$ 0.00", and "LD Wp \$ 0.00". Nothing needs to be performed here.

### 6-6-3. Iop Compare

The current Iop value at laser power 7 mW output and reference Iop value (set at shipment) written in the nonvolatile memory are compared, and the rate of increase/decrease will be displayed in percentage.

**Note:** Perform this function with the optical pick-up set at room temperature.

#### Procedure

1. Move **[◀▶/▶▶]** to display "Iop Compare"(C27).
2. Press the **[ENTER/YES]** button and start measurements.
3. When measurements complete, the display changes to " $\pm xx\%yy$ ".  
xx is the percentage of increase/decrease, and OK or NG is displayed at yy to indicate whether the percentage of increase/decrease is within the allowable range.
4. Press the **[MENU/NO]** button to end.

## 6-6-4. Auto Check

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up. To perform this test mode, the laser power must first be checked. Perform Auto Check after the laser power check and Iop compare.

### Procedure

1. Press the **[ENTER/YES]** button. If "LDPWR" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop compare, and then repeat from step 1.
2. If a disc is in the mechanical deck, it will be ejected forcibly. "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
3. If a disc is loaded at step 2, the check will start automatically.
4. When "XX CHECK" is displayed, the item corresponding to XX will be performed.  
When "06 CHECK" completes, the disc loaded at step 2 will be ejected. "DISC IN" will be displayed. Load the check disc (MD) TDYS-1.
5. When the disc is loaded, the check will automatically be resumed from "07 CHECK".
6. After completing to test item 12, check OK or NG will be displayed. If all items are OK, "CHECK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHECK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of the other spindle motor, sled motor, etc.

When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

## 6-6-5. Other Checks

All the following checks are performed by the Auto Check mode. They therefore need not be performed in normal operation.

### 6-6-6. Traverse Check

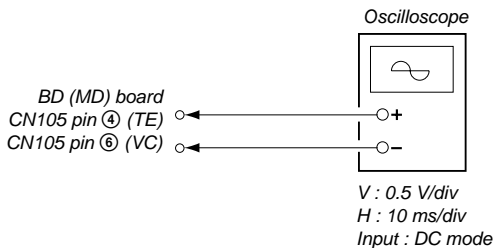
### 6-6-7. Focus Bias Check

### 6-6-8. C PLAY Check

### 6-6-9. Self-Recording/Playback Check

## 6-6-6. Traverse Check

Connection :

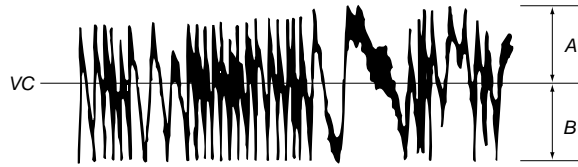


### Checking Procedure:

1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) of the BD (MD) board.
2. Load a test disc (MDW-74/GA-1). (Refer to Note 1.)
3. Press the **[▶▶]** button, and move the optical pick-up outside the pit.
4. Move **[◀◀/▶▶]** and display "EF MO CHECK"(C14).
5. Press the **[ENTER/YES]** button and display "EFB = **[□□]** MO-R". (Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)

6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not move **[◀◀/▶▶]**. (Read power traverse checking)

(Traverse Waveform)

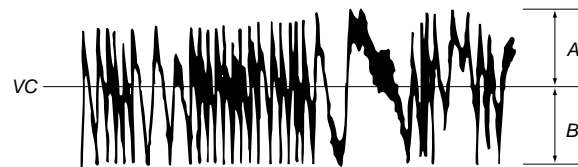


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

7. Press the **[ENTER/YES]** button and display "EFB = **[□□]** MO-W".
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. (Write power traverse checking)

(Traverse Waveform)

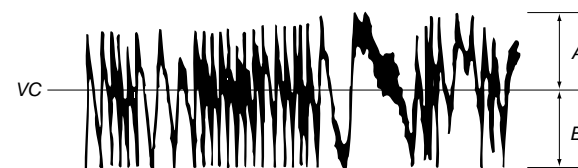


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

9. Press the **[ENTER/YES]** button display "EFB = **[□□]** MO-P". Then, the optical pick-up moves to the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not move **[◀◀/▶▶]**.



(Traverse Waveform)



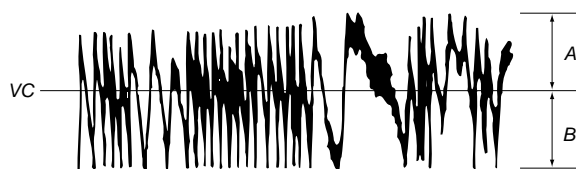
Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

11. Press the **[ENTER/YES]** button display "EF MO CHECK" (C14).  
The disc stops rotating automatically.
12. Press the **[▲]** button and remove the disc.
13. Load the check disc (MD) TDYS-1.
14. Move **[◀◀/▶▶]** and display "EF CD CHECK" (C15).
15. Press the **[ENTER/YES]** button and display "EFB = **[□□]** CD".  
Servo is imposed automatically.



16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not move  .

(Traverse Waveform)



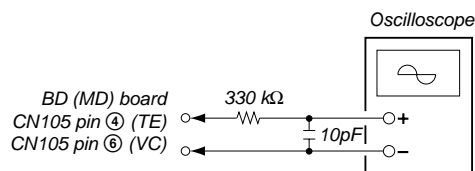
Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

17. Press the  button and display “EF CD CHECK”(C15).  
18. Press the  button and remove the check disc (MD) TDYS-1.

**Note 1 :** MO reading data will be erased during if a recorded disc is used in this adjustment.












**Note 2 :** If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



### 6-6-7. Focus Bias Check

Change the focus bias and check the focus tolerance amount.






#### Checking Procedure :

- Load a continuously recorded test disc (MDW-74/GA-1).  
(Refer to “6-5. Using the Continuously Recorded Disc”.)
- Move   and display “CPLAY1MODE”(C34).
- Press the  button and display “CPLAY1MID”.
- Press the  button, when “C = 0000 AD = 00” is displayed.
- Move   and display “FBIAS CHECK”(C16).
- Press the  button and display “0000/00 c = 00”.  
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.  
Check that the C1 error is below 20 and ADER is below 2.
- Press the  button and display “0000/00 b = 00”.  
Check that the C1 error is below 100 and ADER is below 2.
- Press the  button and display “0000/00 a = 00”.  
Check that the C1 error is below 100 and ADER is below 2.
- Press the  button, next press the  button, and remove the test disc.

### 6-6-8. C PLAY Check




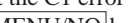

#### MO Error Rate Check

##### Checking Procedure :

- Load a continuously recorded test disc (MDW-74/GA-1).  
(Refer to “6-5. Using the Continuously Recorded Disc”.)
- Move   and display “CPLAY1MODE”(C34).
- Press the  button and display “CPLAY1MID”.
- The display changes to “C1 = 0000 AD = 00”.
- If the C1 error rate is below 20, check that ADER is 00.
- Press the  button, stop playback, press the  button, and test disc.

#### CD Error Rate Check










##### Checking Procedure :

- Load a check disc (MD) TDYS-1.
- Move   and display “CPLAY1MODE”(C34).
- Press the  button twice and display “CPLAY1MID”.
- The display changes to “C1 = 0000 AD = 00”.
- Check that the C1 error rate is below 20.
- Press the  button, stop playback, press the  button, and the test disc.

### 6-6-9. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

#### Checking Procedure :

- Insert a recordable test disc (MDW-74/GA-1) into the unit.
- Move   to display “CREC 1MODE”(C35).
- Press the  button to display the “CREC 1MID”.
- When recording starts, “**REC**” is displayed, this becomes “CREC (@@@@)” (@@@@ is the address), and recording starts.
- About 1 minute later, press the  button to stop continuous recording.
- Move   to display “CPLAY1MODE”(C34).
- Press the  button to display “CPLAY1MID”.
- “C1 = 0000 AD = 00” will be displayed.
- Check that the C1 error becomes below 20 and the AD error below 2.
- Press the  button to stop playback, and press the  button and remove the disc.

## 6-7. INITIAL SETTING OF ADJUSTMENT VALUE

### Note:

Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.

If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.

For details of the initial setting, refer to “6-4. Precautions on Adjustments” and execute the initial setting before the adjustment as required.

### Setting Procedure :

1. Move **[◀◀/▶▶]** to display “ADJ CLEAR” (C28).
2. Press the **[ENTER/YES]** button. “Complete!” will be displayed momentarily and initial setting will be executed, after which “ADJ CLEAR” (C28) will be displayed.

## 6-8. RECORDING AND DISPLAYING THE Iop INFORMATION

The Iop data can be recorded in the non-volatile memory. The Iop value on the label of the optical pick-up and the Iop value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

### Recording Procedure :

1. Move **[◀◀/▶▶]** to display “Iop Write” (C05), and press the **[ENTER/YES]** button.
2. The display becomes Ref=@@@.@ (@ is an arbitrary number) and the numbers which can be changed will blink.
3. Input the Iop value written on the optical pick-up.  
To select the number : Move **[◀◀/▶▶]**.  
To select the digit : Press the **[REC MODE]** button
4. When the **[ENTER/YES]** button is pressed, the display becomes “Measu=@@@.@.” (@ is an arbitrary number).
5. As the adjustment results are recorded for the 6 value. Leave it as it is and press the **[ENTER/YES]** button.
6. “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write” (C05).

### Display Procedure :

1. Move **[◀◀/▶▶]** to display “Iop Read”(C26).
2. Press the **[ENTER/YES]** button.
3. “@@@.@/##.##” is displayed and the recorded contents are displayed.  
@@@.@ indicates the Iop value labeled on the pick-up.  
##.## indicates the Iop value after adjustment
3. To end, press the **[MENU/NO]** button or press the **[REC MODE]** button and display “Iop Read” (C26).

## 6-9. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

### Note :

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

### Adjusting Procedure :

1. Move **[◀◀/▶▶]** and display “TEMP ADJUS” (C03).
2. Press the **[ENTER/YES]** button and select the “TEMP ADJUS” (C03) mode.
3. “TEMP = [ ] [OK]” and the current temperature data will be displayed.
4. To save the data, press the **[ENTER/YES]** button.  
When not saving the data, press the **[MENU/NO]** button.
5. When the **[ENTER/YES]** button is pressed, “TEMP = [ ] SAVE” will be displayed and turned back to “TEMP ADJUS” (C03) display then. Pressing the **[MENU/NO]** button displays “TEMP ADJUS” (C03) immediately.

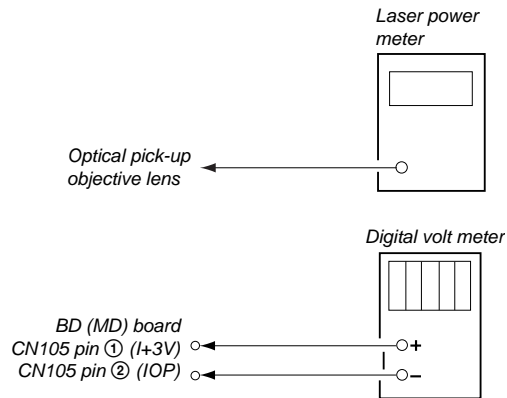
### Specified Value :

The “TEMP = [ ]” should be within “E0 - EF”, “F0 - FF”, “00 - 0F”, “10 - 1F” and “20 - 2F”.

## 6-10. LASER POWER ADJUSTMENT

Check the Iop value of the optical pick-up before adjustments. (Refer to 6-8. Recording and Displaying Iop Information.)

### Connection :



### Adjusting Procedure :

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **[◀◀]** or **[▶▶]** button and move the optical pick-up.)  
Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (IOP).
2. Move **[◀◀/▶▶]** and display “LDPWR ADJUS” (C04).  
(Laser power : For adjustment)
3. Press the **[ENTER/YES]** button once and display “LD 0.9 mW \$ [ ]”.
4. Move **[◀◀/▶▶]** so that the reading of the laser power meter becomes 0.85 to 0.91 mW. Press the **[ENTER/YES]** button after setting the range knob of the laser power meter, and save the adjustment results. (“LD SAVE \$ [ ]” will be displayed for a moment.)
5. Then “LD 7.0 mW \$ [ ]” will be displayed.
6. Move **[◀◀/▶▶]** so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the **[ENTER/YES]** button and save it.

**Note :** Do not perform the emission with 7.0 mW more than 15 seconds continuously.

7. Then, move **[◀▶]** and display “LDPWR CHECK” (C13).
8. Press the **[ENTER/YES]** button once and display “LD 0.9 mW \$ **00**”. Check that the reading of the laser power meter become 0.85 to 0.91 mW.
9. Press the **[ENTER/YES]** button once more and display “LD 7.0 mW \$ **00**”. Check that the reading the laser power meter and digital volt meter satisfy the specified value.  
Note down the digital voltmeter reading value.

#### Specified Value :

Laser power meter reading :  $7.0 \pm 0.2$  mW

Digital voltmeter reading : Optical pick-up displayed value  $\pm 10\%$

(Optical pick-up label)

KMS260B  
20101  
H0576

(For details of the method for checking this value, refer to “6-8. Recording and Displaying the IOP Information”.)

$I_{op} = 57.6$  mA in this case

$I_{op} \text{ (mA)} = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

10. Press the **[MENU/NO]** button and display “LDPWR CHECK” (C13) and stop the laser emission.  
(The **[MENU/NO]** button is effective at all times to stop the laser emission.)
11. Move **[◀▶]** to display “Iop Write”(C05).
12. Press the **[ENTER/YES]** button. When the display becomes Ref=@@@.@ (@ is an arbitrary number), press the **[ENTER/YES]** button to display “Measu=@@@.@” (@ is an arbitrary number).
13. The numbers which can be changed will blink. Input the Iop value noted down at step 9.  
To select the number : Move **[◀▶]** .  
To select the digit : Press the **[REC MODE]** button.
14. When the **[ENTER/YES]** button is pressed, “Complete!” will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become “Iop Write” (C05).

**Note 1:** After step 4, each time the **[ENTER/YES]** button is pressed, the display will be switched between “LD 0.7 mW \$ **00**”, “LD 6.2 mW \$ **00**”, and “LD Wp \$ **00**”. Nothing needs to be performed here.

#### 6-11. Iop NV SAVE

Write the reference values in the nonvolatile memory to perform “Iop compare”. As this involves rewriting the reference values, do not perform this procedure except when adjusting the laser power during replacement of the Optical pick-up and when replacing the IC102. Otherwise the Optical pick-up check may deteriorate.

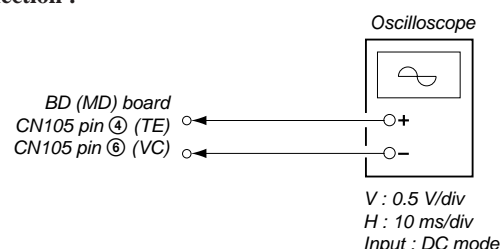
**Note:** Perform this function with the optical pick-up set at room temperature.

#### Procedure

1. Move **[◀▶]** to display “Iop NV Save” (C06).
2. Press the **[ENTER/YES]** button and display “Iop [stop]”.
3. After the display changes to “Iop =xxsave?”, press the **[ENTER/YES]** button.
4. After “Complete!” is displayed momentarily, the display changes to “Iop 7.0 mW”.
5. After the display changes to “Iop=yysave?”, press the **[ENTER/YES]** button.
6. When “Complete!” is displayed, it means that Iop NV saving has been completed.

#### 6-12. TRAVERSE ADJUSTMENT

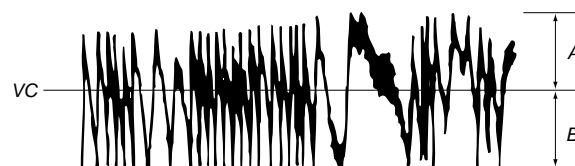
##### Connection :



##### Adjusting Procedure :

1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) of the BD board.
2. Load a test disc (MDW-74/GA-1). (Refer to Note 1.)
3. Press the **[▶▶]** button and move the optical pick-up outside the pit.
4. Move **[◀▶]** and display “EF MO ADJUS” (C14).
5. Press the **[ENTER/YES]** button and display “EFB = **00** MO-R”.  
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Move **[◀▶]** so that the waveform of the oscilloscope becomes the specified value.  
(When **[◀▶]** is moved, the **00** of “EFB= **00**” changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.  
(Read power traverse adjustment)

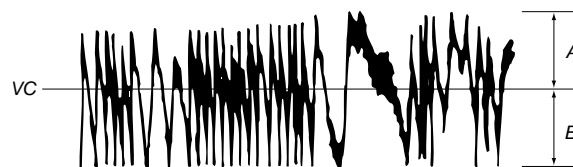
(Traverse Waveform)



Specification A = B

7. Press the **[ENTER/YES]** button and save the result of adjustment to the non-volatile memory (“EFB = **00** SAVE” will be displayed for a moment. Then “EFB = **00** MO-W” will be displayed).
8. Move **[◀▶]** so that the waveform of the oscilloscope becomes the specified value.  
(When **[◀▶]** is moved, the **00** of “EFB- **00** MO-W” changes and the waveform changes.) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.  
(Write power traverse adjustment)

(Traverse Waveform)



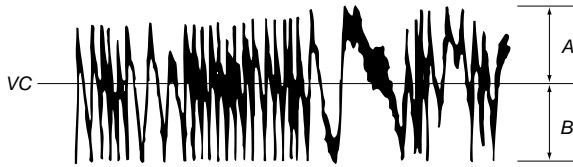
Specification A = B

9. Press the **[ENTER/YES]** button, and save the adjustment results in the non-volatile memory. (“EFB = **00** SAVE” will be displayed for a moment.)
10. “EFB = **00** MO-P”. will be displayed.  
The optical pick-up moves to the pit area automatically and servo is imposed.



11. Move **[◀▶]** until the waveform of the oscilloscope moves closer to the specified value.  
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

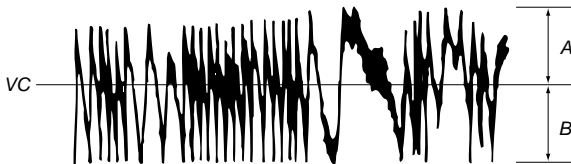
(Traverse Waveform)



Specification  $A = B$

12. Press the **[ENTER/YES]** button, and save the adjustment results in the non-volatile memory. ("EFB = **00** SAVE" will be displayed for a moment.)  
Next "EF MO ADJUS" (C07) is displayed. The disc stops rotating automatically.
13. Press the **[▲]** button and remove the disc.
14. Load the check disc (MD) TDYS-1.
15. Move **[◀▶]** and display "EF CD ADJUS" (C08).
16. Press the **[ENTER/YES]** button and display "EFB = **00** CD".  
Servo is imposed automatically.
17. Move **[◀▶]** so that the waveform of the oscilloscope moves closer to the specified value.  
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)

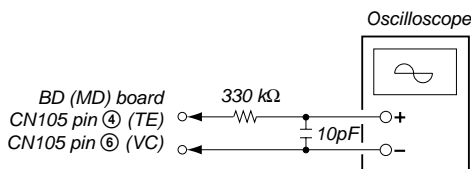


Specification  $A = B$

18. Press the **[ENTER/YES]** button, display "EFB = **00** SAVE" for a moment and save the adjustment results in the non-volatile memory.  
Next "EF CD ADJUS" (C08) will be displayed.
19. Press the **[▲]** button and remove the check disc (MD) TDYS-1.

**Note 1 :** MO reading data will be erased during if a recorded disc is used in this adjustment.

**Note 2 :** If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



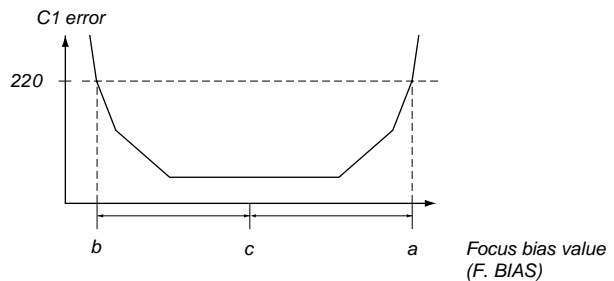
## 6-13. FOCUS BIAS ADJUSTMENT

### Adjusting Procedure :

1. Load a test disk (MDW-74/GA-1).
2. Move **[◀▶]** and display "CPLAY1MODE"(C34).
3. Press the **[ENTER/YES]** button and display "CPLAY1MID".
4. Press the **[MENU/NO]** button when "C1 = **0000** AD = **00**" is displayed.
5. Move **[◀▶]** and display "FBIAS ADJUS"(C09).
6. Press the **[ENTER/YES]** button and display "**0000/00** a = **00**".  
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a =] indicate the focus bias value.
7. Move **[◀▶]** in the right direction and find the focus bias value at which the C1 error rate becomes 220 (Refer to Note 2).
8. Press the **[ENTER/YES]** button and display "**0000/00** b = **00**".
9. Move **[◀▶]** in the left direction and find the focus bias value at which the C1 error rate becomes 220.
10. Press the **[ENTER/YES]** button and display "**0000/00** c = **00**".
11. Check that the C1 error rate is below 20 and ADER is 00. Then press the **[ENTER/YES]** button.
12. If the "(**00**)" in "**00** - **00** - **00** (**00**)" is above 20, press the **[ENTER/YES]** button.  
If below 20, press the **[MENU/NO]** button and repeat the adjustment from step 2.
13. Press the **[▲]** button and remove the test disc.

**Note 1 :** The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position C is automatically calculated from points a and b.

**Note 2 :** As the C1 error rate changes, perform the adjustment using the average value.



## 6-14. ERROR RATE CHECK

### 6-14-1. CD Error Rate Check

#### Checking Procedure :

1. Load a check disc (MD) TDYS-1.
2. Move **[◀◀/▶▶]** and display "CPLAY1MODE" (C34).
3. Press the **[ENTER/YES]** button and display "CPLAY1 MID".
4. The display changes to "C1 = 0000 AD = 00".
5. Check that the C1 error rate is below 20.
6. Press the **[MENU/NO]** button, stop playback, press the **[▲]** button, and remove the test disc.

### 6-14-2. MO Error Rate Check

#### Checking Procedure :

1. Load a continuously recorded test disc (MDW-74/GA-1).  
(Refer to "6-5. Using the Continuously Recorded Disc".)
2. Move **[◀◀/▶▶]** and display "CPLAY1MODE" (C34).
3. Press the **[ENTER/YES]** button and display "CPLAY1MID".
4. The display changes to "C1 = 0000 AD = 00".
5. If the C1 error rate is below 20, check that ADER is 00.
6. Press the **[MENU/NO]** button, stop playback, press the **[▲]** button, and remove the test disc.

## 6-15. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

#### Checking Procedure :

1. Load a continuously recorded test disc (MDW-74/GA-1).  
(Refer to "6-5. Using the Continuously Recorded Disc".)
2. Move **[◀◀/▶▶]** and display "CPLAY1 MODE"(C34).
3. Press the **[ENTER/YES]** button and display "CPLAY1 MID".
4. Press the **[MENU/NO]** button when "C1 = 0000 AD = 00" is displayed.
5. Move **[◀◀/▶▶]** and display "FBIAS CHECK"(C16).
6. Press the **[ENTER/YES]** button and display "0000/00 c = 00".  
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [=] indicate the focus bias value.  
Check that the C1 error is below 20 and ADER is below 2.
7. Press the **[ENTER/YES]** button and display "0000/00 b = 00".  
Check that the C1 error is below 100 and ADER is below 2.
8. Press the **[ENTER/YES]** button and display "0000/00 a = 00".  
Check that the C1 error is below 100 and ADER is below 2.
9. Press the **[MENU/NO]** button, next press the **[▲]** button and remove the continuously recorded disc.

**Note 1 :** If the C1 error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

## 6-16. AUTO GAIN CONTROL OUTPUT LEVEL ADJUSTMENT

Be sure to perform this adjustment when the Optical pick-up is replaced.

If the adjustment results becomes "Adjust NG!", the Optical pick-up may be faulty or the servo system circuits may be abnormal.

### 6-16-1. CD Auto Gain Control Output Level Adjustment

#### Adjusting Procedure :

1. Insert the check disc (MD) TDYS-1.
2. Move **[◀◀/▶▶]** to display "AG Set (CD)" (C11).
3. When the **[ENTER/YES]** button is pressed, the adjustment will be performed automatically.  
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (CD)" (C11).
4. Press the **[▲]** button and remove the disc.

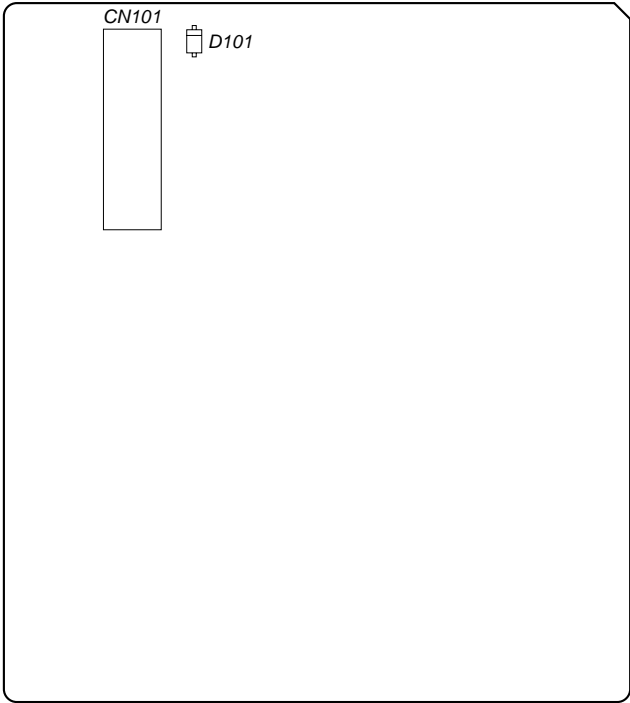
### 6-16-2. MO Auto Gain Control Output Level Adjustment

#### Adjusting Procedure :

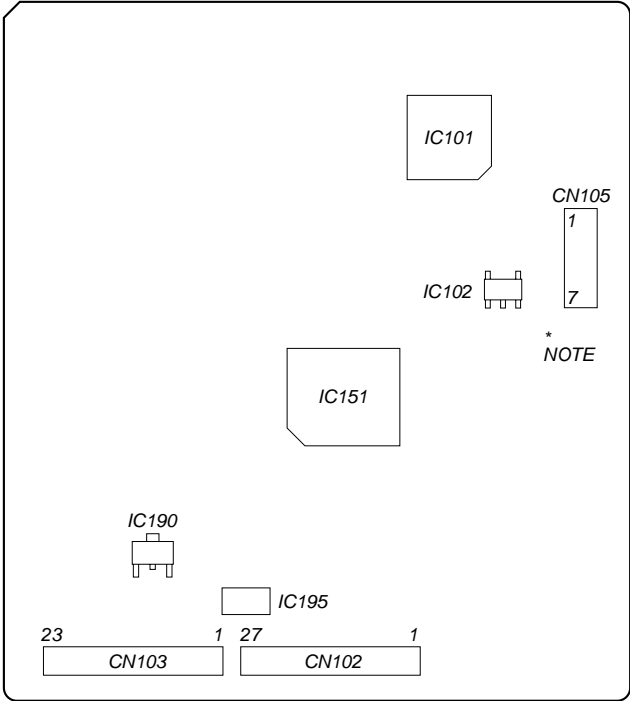
1. Insert the reference disc (MDW-74/GA-1) for recording.
2. Move **[◀◀/▶▶]** to display "AG Set (MO)" (C10).
3. When the **[ENTER/YES]** button is pressed, the adjustment will be performed automatically.  
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (MO)" (C10).
4. Press the **[▲]** button and remove the disc.

6-17. ADJUSTING POINTS AND CONNECTING POINTS

[BD (MD) BOARD] (SIDE A)



[BD (MD) BOARD] (SIDE B)

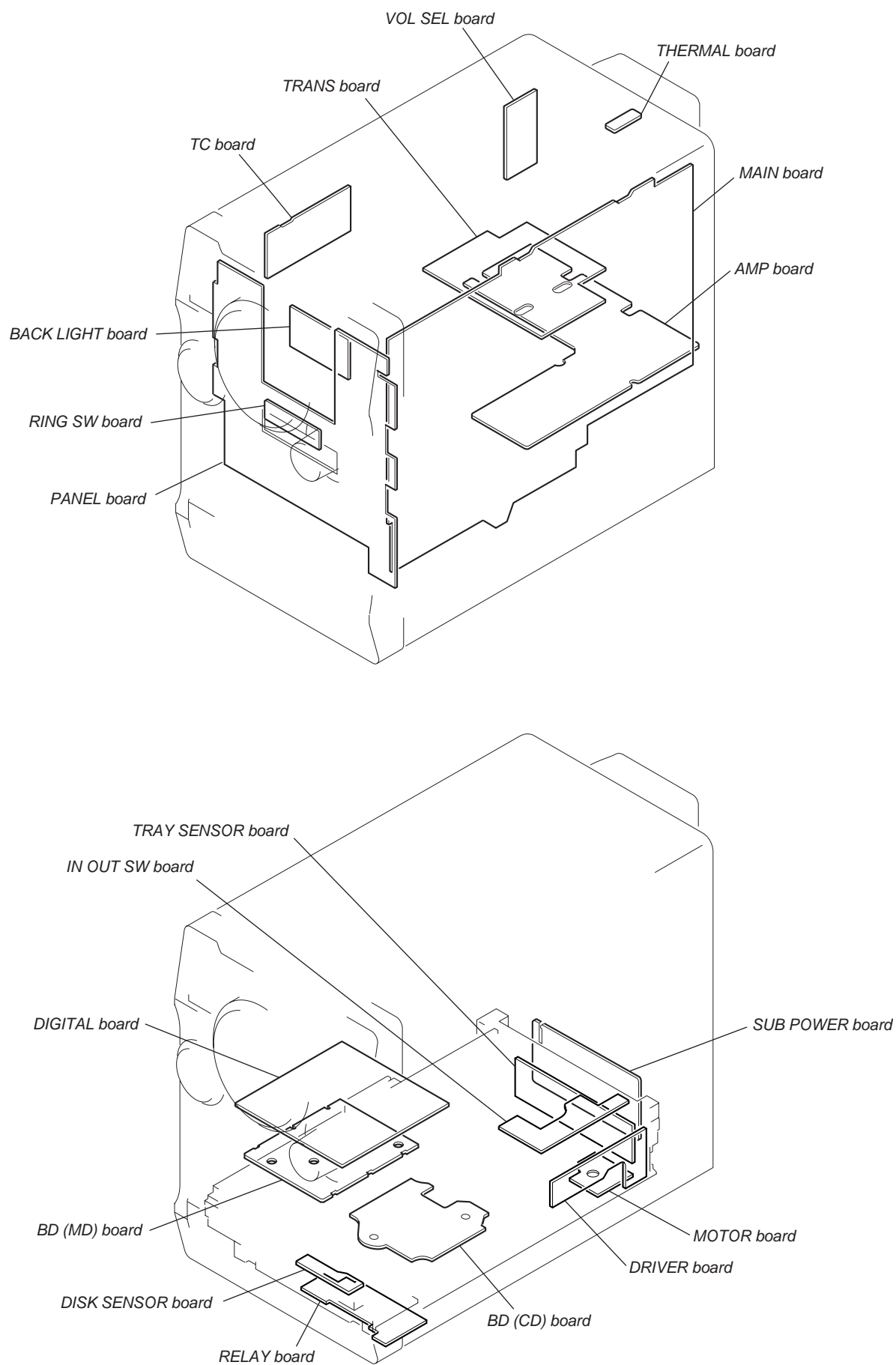


**NOTE:**It is useful to use the jig. for checking the waveform. (Refer to Servicing Note on page 8.)



## SECTION 7 DIAGRAMS

### 7-1. CIRCUIT BOARDS LOCATION






## THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.












(In addition to this, the necessary note is printed in each block.)

### For schematic diagrams.

#### Note:





- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{pF}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- $\Delta$  : internal component.
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.

**Note:** The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

-  : B+ Line.
-  : B- Line.
-  : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
-  : FM
-  : PB
-  : REC
-  : CD (Analog)
-  : CD (Digital)
-  : DIGITAL IN (Optical)
-  : MD (PB)
-  : MD (REC)
- Abbreviation
- AUS : Australian model
- HK : Hong Kong model

### For printed wiring boards.

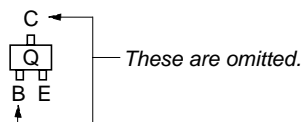
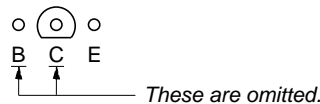
#### Note:

-  : parts extracted from the component side.
-  : parts extracted from the conductor side.
-  : Through hole.
-  : Pattern from the side which enables seeing.

#### Caution:

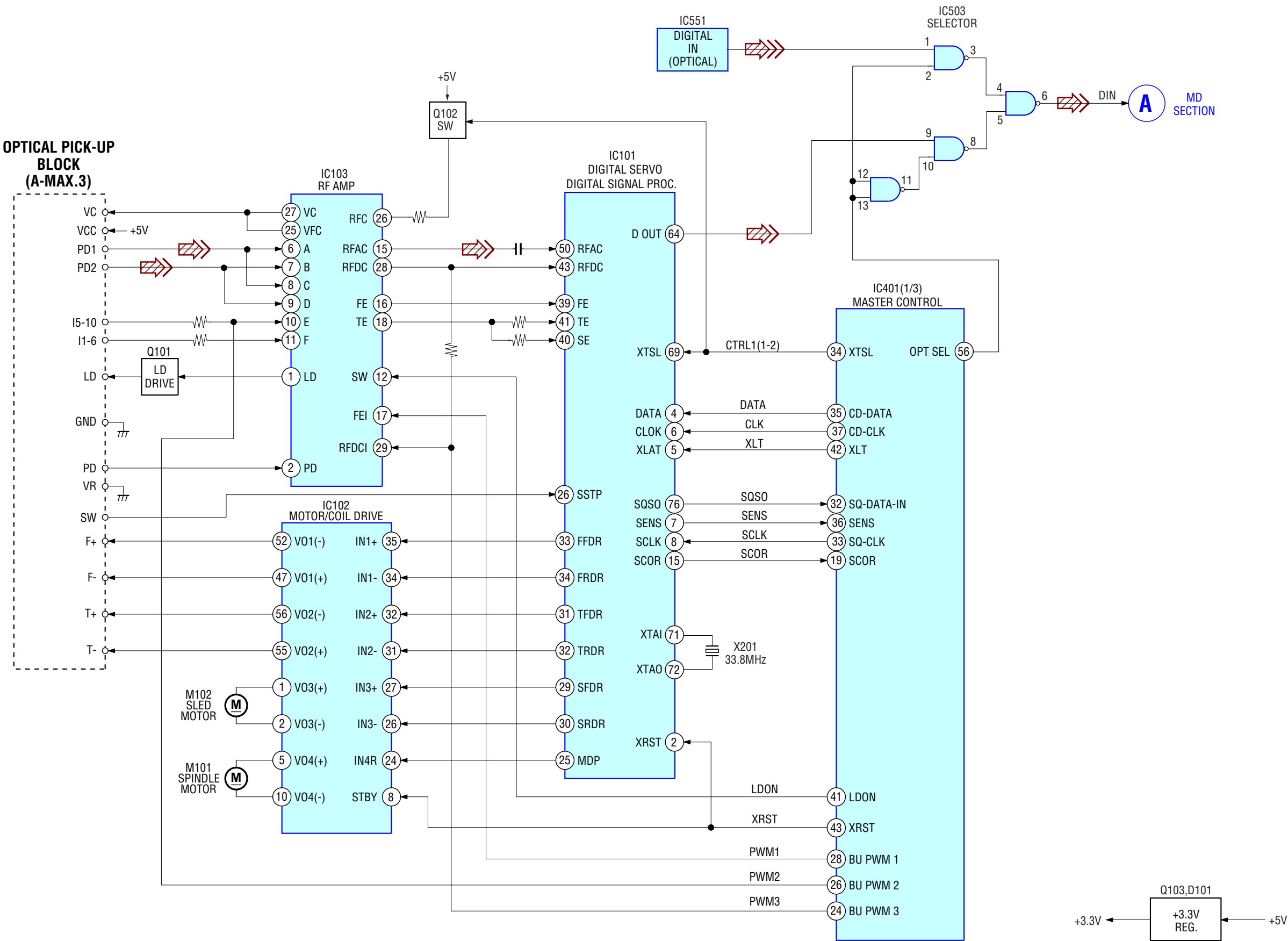
Pattern face side: Parts on the pattern face side seen from the (Side B) pattern face are indicated.  
Parts face side: Parts on the parts face side seen from the (Side A) parts face are indicated.

### • Indication of transistor



7-2. BLOCK DIAGRAMS  
CD SECTION

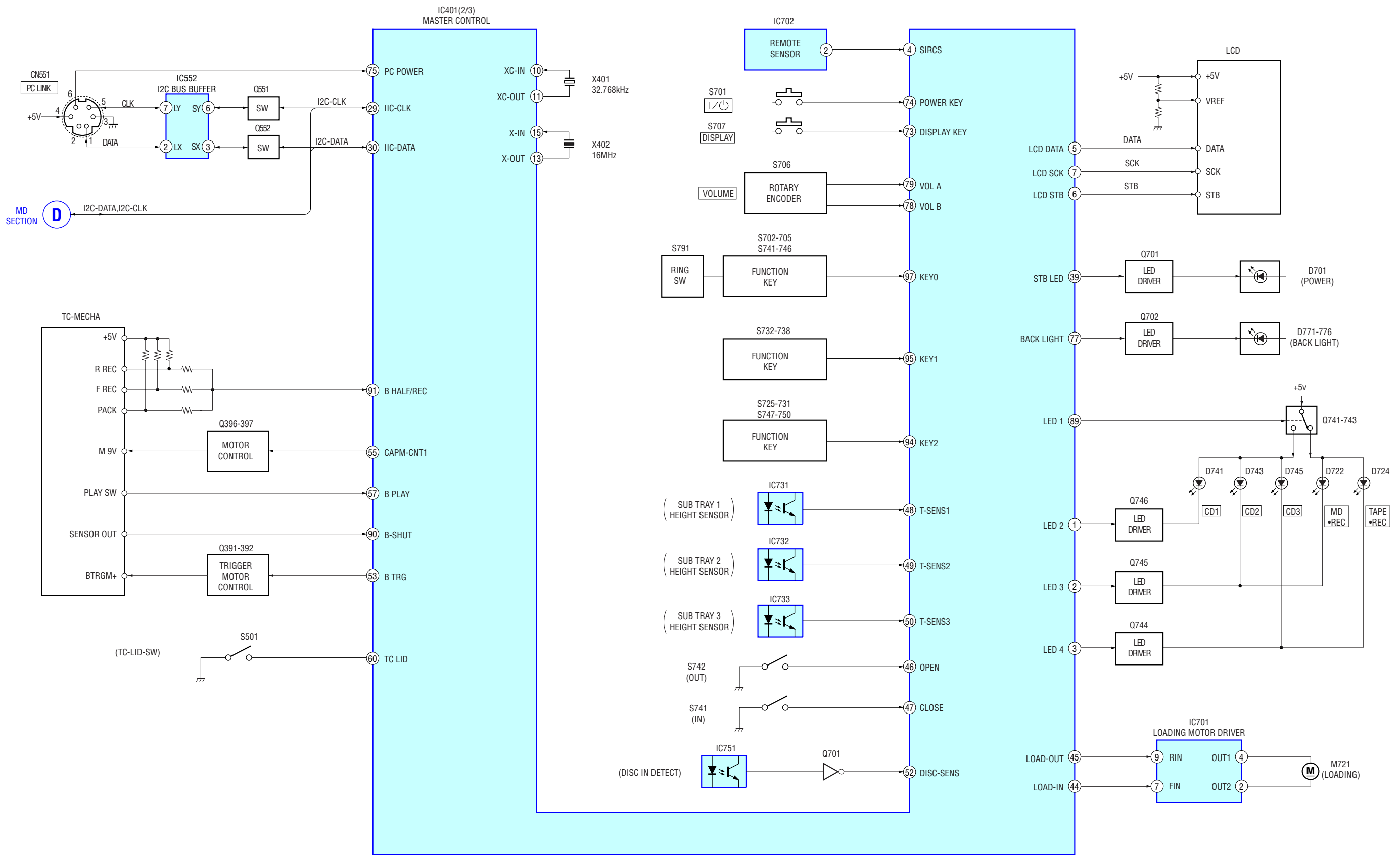
- Signal Path
-  : CD (DIGITAL)
-  :DIGITAL IN (OPTICAL)



## MD SECTION

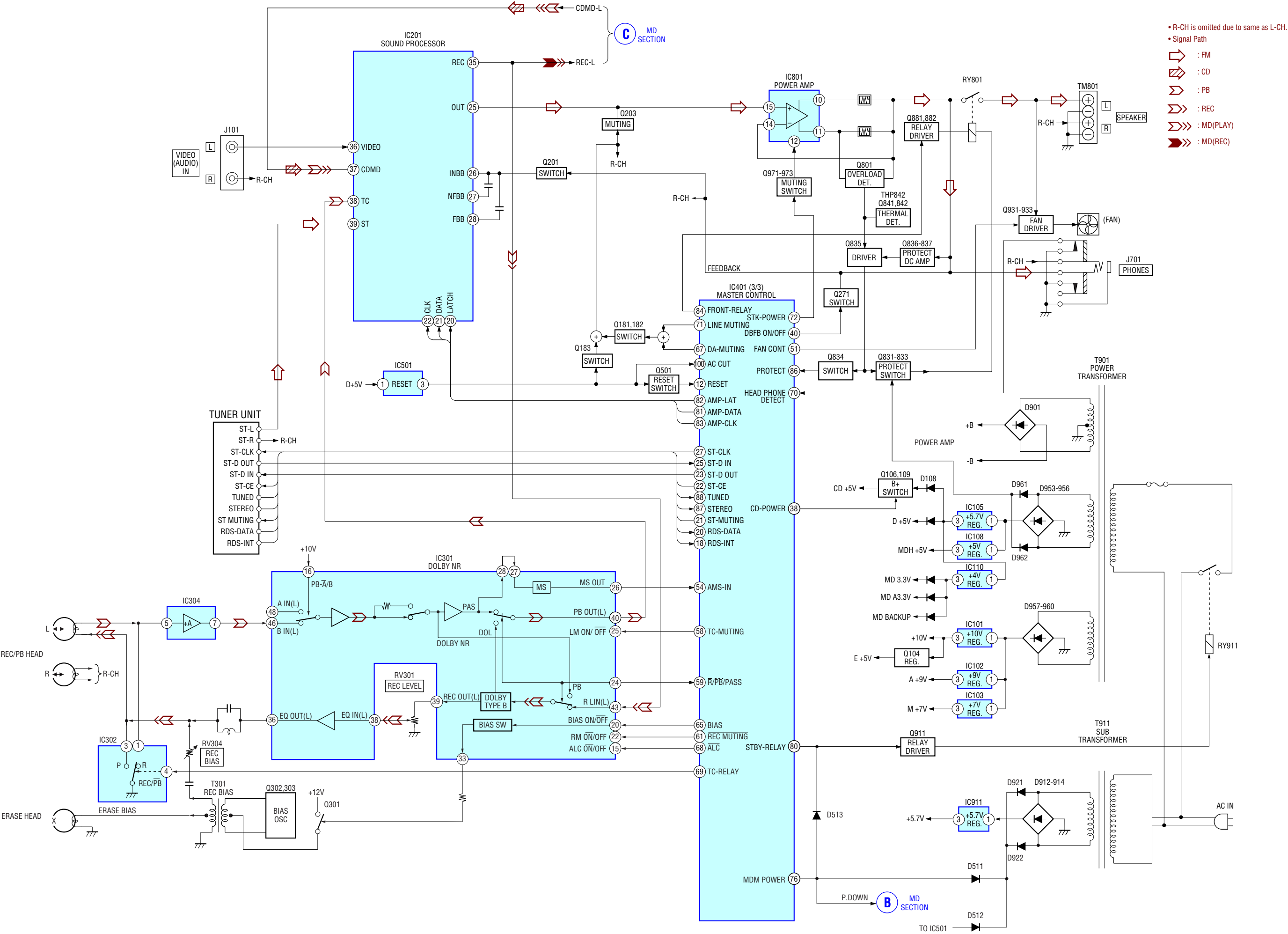


SYSCON SECTION



HCD-CL5MD

MAIN SECTION





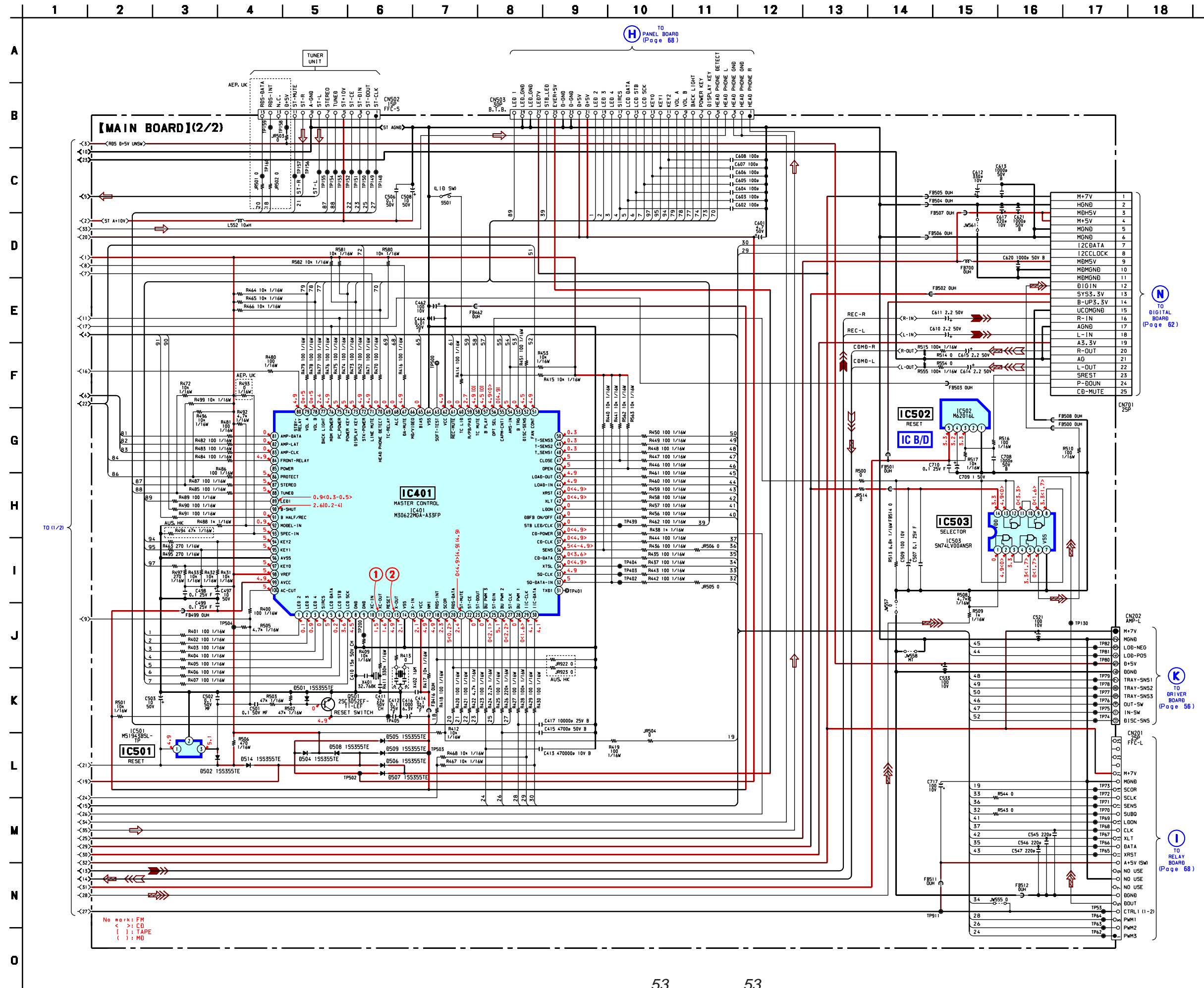
Ref. No.	Location
D103	G-4
D106	F-6
D107	F-8
D108	F-8
D182	F-11
D202	C-10
D203	C-11
D204	H-5
D205	H-3
D206	G-6
D501	D-1
D502	B-1
D504	B-2
D505	B-2
D506	B-1
D507	B-1
D508	B-2
D509	B-2
D511	B-1
D512	B-1
D513	B-3
D514	B-1
IC101	G-10
IC102	G-10
IC103	G-9
IC105	F-8
IC108	E-6
IC110	G-6
IC201	C-10
IC301	D-6
IC401	D-3
IC501	C-1
IC502	G-3
IC503	H-4
IC551	F-13
IC552	G-12
Q104	G-10
Q106	F-7
Q109	F-9
Q181	F-11
Q182	F-11
Q183	F-11
Q201	D-9
Q203	C-9
Q251	B-9
Q253	C-9
Q271	D-9
Q391	B-7
Q392	B-7
Q396	B-8
Q397	B-8
Q501	D-1
Q551	F-11
Q552	G-12





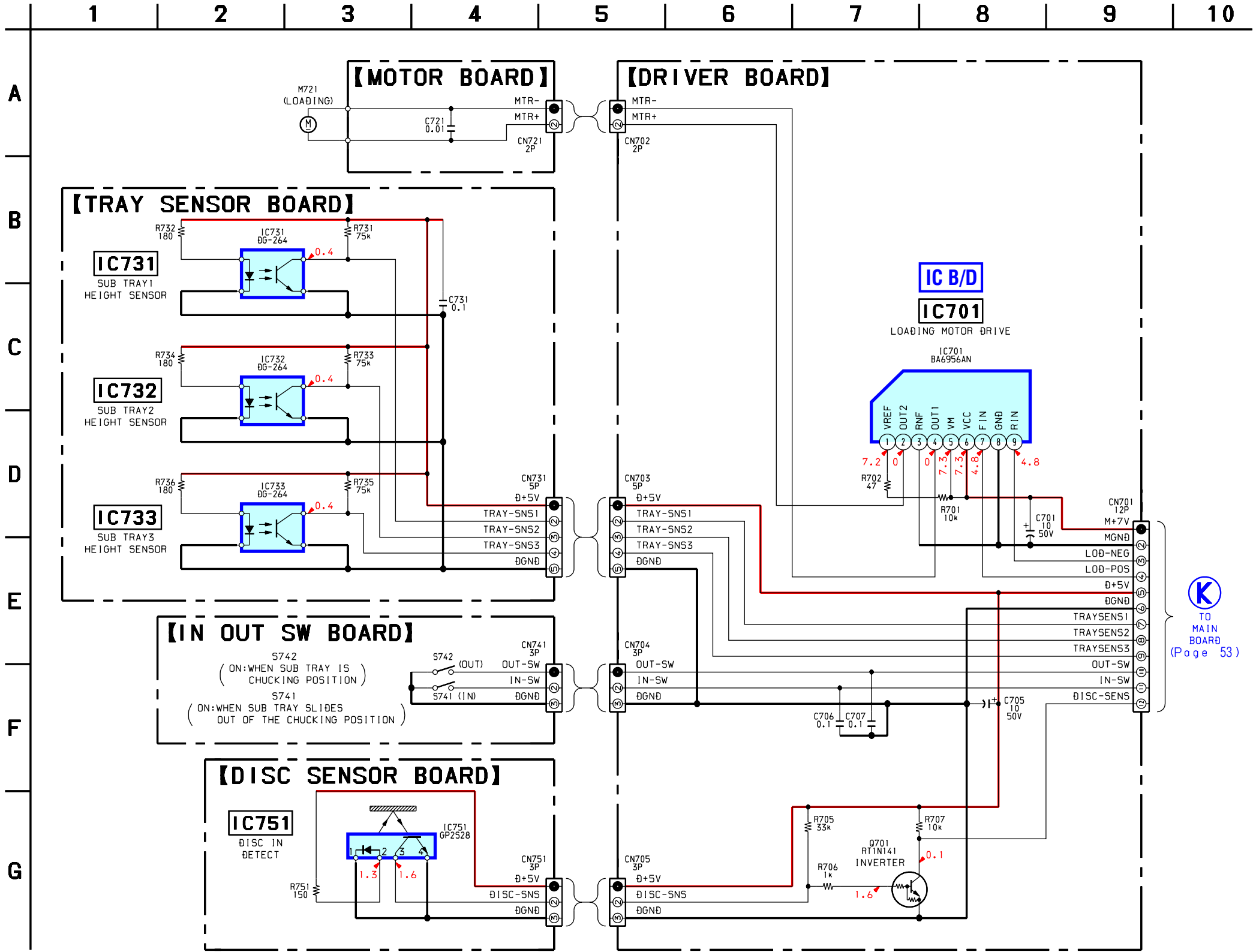
### 7-5. SCHEMATIC DIAGRAM MAIN SECTION (2/2)

- See page 74 for Waveforms.
- See page 83 for IC Pin Function Description.
- See page 85 for IC Block Diagrams.



- 
- BD (CD) BOARD**
- IC101: DIGITAL SERVO DIGITAL SIGNAL PROC. CXD30680**
- IC102: MOTOR/COIL DRIVE AN41020**
- IC103: RF AMP CXA2581N**
- Q101: 2SB710 LD DRIVE**
- Q102: UN2111 SWITCH**
- Q103: 2SD1664 +3.3V REG.**
- Q104: 2SD1664 +3.3V REG.**
- Q105: 2SD1664 +3.3V REG.**
- Q106: 2SD1664 +3.3V REG.**
- Q107: 2SD1664 +3.3V REG.**
- Q108: 2SD1664 +3.3V REG.**
- Q109: 2SD1664 +3.3V REG.**
- Q110: 2SD1664 +3.3V REG.**
- Q111: 2SD1664 +3.3V REG.**
- Q112: 2SD1664 +3.3V REG.**
- Q113: 2SD1664 +3.3V REG.**
- Q114: 2SD1664 +3.3V REG.**
- Q115: 2SD1664 +3.3V REG.**
- Q116: 2SD1664 +3.3V REG.**
- Q117: 2SD1664 +3.3V REG.**
- Q118: 2SD1664 +3.3V REG.**
- Q119: 2SD1664 +3.3V REG.**
- Q120: 2SD1664 +3.3V REG.**
- Q121: 2SD1664 +3.3V REG.**
- Q122: 2SD1664 +3.3V REG.**
- Q123: 2SD1664 +3.3V REG.**
- Q124: 2SD1664 +3.3V REG.**
- Q125: 2SD1664 +3.3V REG.**
- Q126: 2SD1664 +3.3V REG.**
- Q127: 2SD1664 +3.3V REG.**
- Q128: 2SD1664 +3.3V REG.**
- Q129: 2SD1664 +3.3V REG.**
- Q130: 2SD1664 +3.3V REG.**
- Q131: 2SD1664 +3.3V REG.**
- Q132: 2SD1664 +3.3V REG.**
- Q133: 2SD1664 +3.3V REG.**
- Q134: 2SD1664 +3.3V REG.**
- Q135: 2SD1664 +3.3V REG.**
- Q136: 2SD1664 +3.3V REG.**
- Q137: 2SD1664 +3.3V REG.**
- Q138: 2SD1664 +3.3V REG.**
- Q139: 2SD1664 +3.3V REG.**
- Q140: 2SD1664 +3.3V REG.**
- Q141: 2SD1664 +3.3V REG.**
- Q142: 2SD1664 +3.3V REG.**
- Q143: 2SD1664 +3.3V REG.**
- Q144: 2SD1664 +3.3V REG.**
- Q145: 2SD1664 +3.3V REG.**
- Q146: 2SD1664 +3.3V REG.**
- Q147: 2SD1664 +3.3V REG.**
- Q148: 2SD1664 +3.3V REG.**
- Q149: 2SD1664 +3.3V REG.**
- Q150: 2SD1664 +3.3V REG.**
- Q151: 2SD1664 +3.3V REG.**
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- Q153: 2SD1664 +3.3V REG.**
- Q154: 2SD1664 +3.3V REG.**
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- Q156: 2SD1664 +3.3V REG.**
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- Q164: 2SD1664 +3.3V REG.**
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- Q166: 2SD1664 +3.3V REG.**
- Q167: 2SD1664 +3.3V REG.**
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- Q169: 2SD1664 +3.3V REG.**
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- Q172: 2SD1664 +3.3V REG.**
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- Q174: 2SD1664 +3.3V REG.**
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- Q177: 2SD1664 +3.3V REG.**
- Q178: 2SD1664 +3.3V REG.**
- Q179: 2SD1664 +3.3V REG.**
- Q180: 2SD1664 +3.3V REG.**
- Q181: 2SD1664 +3.3V REG.**
- Q182: 2SD1664 +3.3V REG.**
- Q183: 2SD1664 +3.3V REG.**
- Q184: 2SD1664 +3.3V REG.**
- Q185: 2SD1664 +3.3V REG.**
- Q186: 2SD1664 +3.3V REG.**
- Q187: 2SD1664 +3.3V REG.**
- Q188: 2SD1664 +3.3V REG.**
- Q189: 2SD1664 +3.3V REG.**
- Q190: 2SD1664 +3.3V REG.**
- Q191: 2SD1664 +3.3V REG.**
- Q192: 2SD1664 +3.3V REG.**
- Q193: 2SD1664 +3.3V REG.**
- Q194: 2SD1664 +3.3V REG.**
- Q195: 2SD1664 +3.3V REG.**
- Q196: 2SD1664 +3.3V REG.**
- Q197: 2SD1664 +3.3V REG.**
- Q198: 2SD1664 +3.3V REG.**
- Q199: 2SD1664 +3.3V REG.**
- Q200: 2SD1664 +3.3V REG.**
- Q201: 2SD1664 +3.3V REG.**
- Q202: 2SD1664 +3.3V REG.**
- Q203: 2SD1664 +3.3V REG.**
- Q204: 2SD1664 +3.3V REG.**
- Q205: 2SD1664 +3.3V REG.**
- Q206: 2SD1664 +3.3V REG.**
- Q207: 2SD1664 +3.3V REG.**
- Q208: 2SD1664 +3.3V REG.**
- Q209: 2SD1664 +3.3V REG.**
- Q210: 2SD1664 +3.3V REG.**
- Q211: 2SD1664 +3.3V REG.**
- Q212: 2SD1664 +3.3V REG.**
- Q213: 2SD1664 +3.3V REG.**
- Q214: 2SD1664 +3.3V REG.**
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- Q216: 2SD1664 +3.3V REG.**
- Q217: 2SD1664 +3.3V REG.**
- Q218: 2SD1664 +3.3V REG.**
- Q219: 2SD1664 +3.3V REG.**
- Q220: 2SD1664 +3.3V REG.**
- Q221: 2SD1664 +3.3V REG.**
- Q222: 2SD1664 +3.3V REG.**
- Q223: 2SD1664 +3.3V REG.**
- Q224: 2SD1664 +3.3V REG.**
- Q225: 2SD1664 +3.3V REG.**
- Q226: 2SD1664 +3.3V REG.**
- Q227: 2SD1664 +3.3V REG.**
- Q228: 2SD1664 +3.3V REG.**
- Q229: 2SD1664 +3.3V REG.**
- Q230: 2SD1664 +3.3V REG.**
- Q231: 2SD1664 +3.3V REG.**
- Q232: 2SD1664 +3.3V REG.**
- Q233: 2SD1664 +3.3V REG.**
- Q234: 2SD1664 +3.3V REG.**
- Q235: 2SD1664 +3.3V REG.**
- Q236: 2SD1664 +3.3V REG.**
- Q237: 2SD1664 +3.3V REG.**
- Q238: 2SD1664 +3.3V REG.**
- Q239: 2SD1664 +3.3V REG.**
- Q240: 2SD1664 +3.3V REG.**
- Q241: 2SD16**

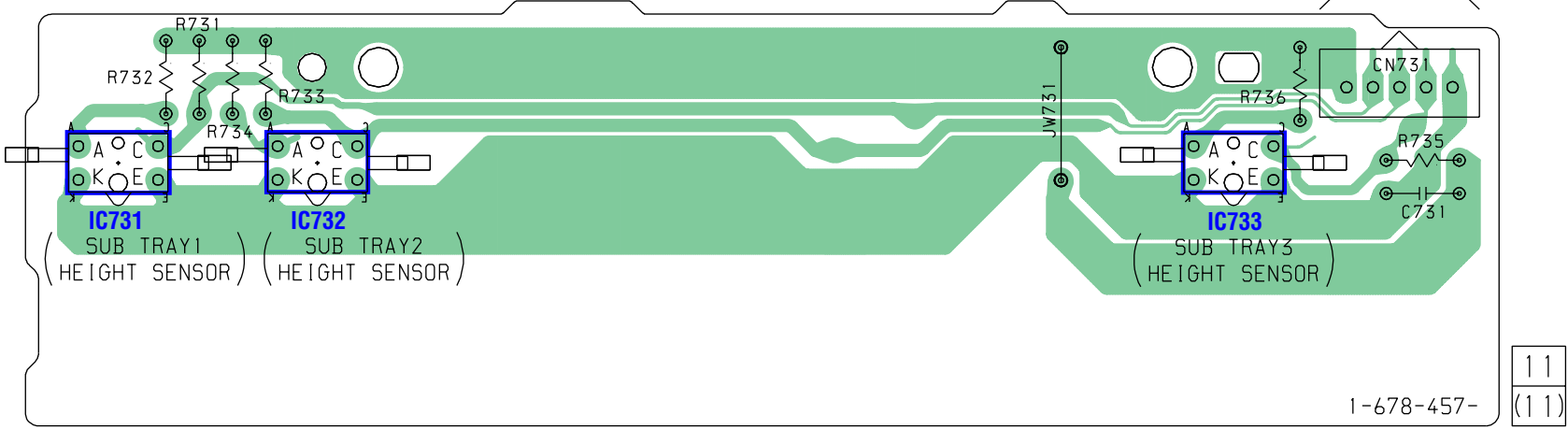




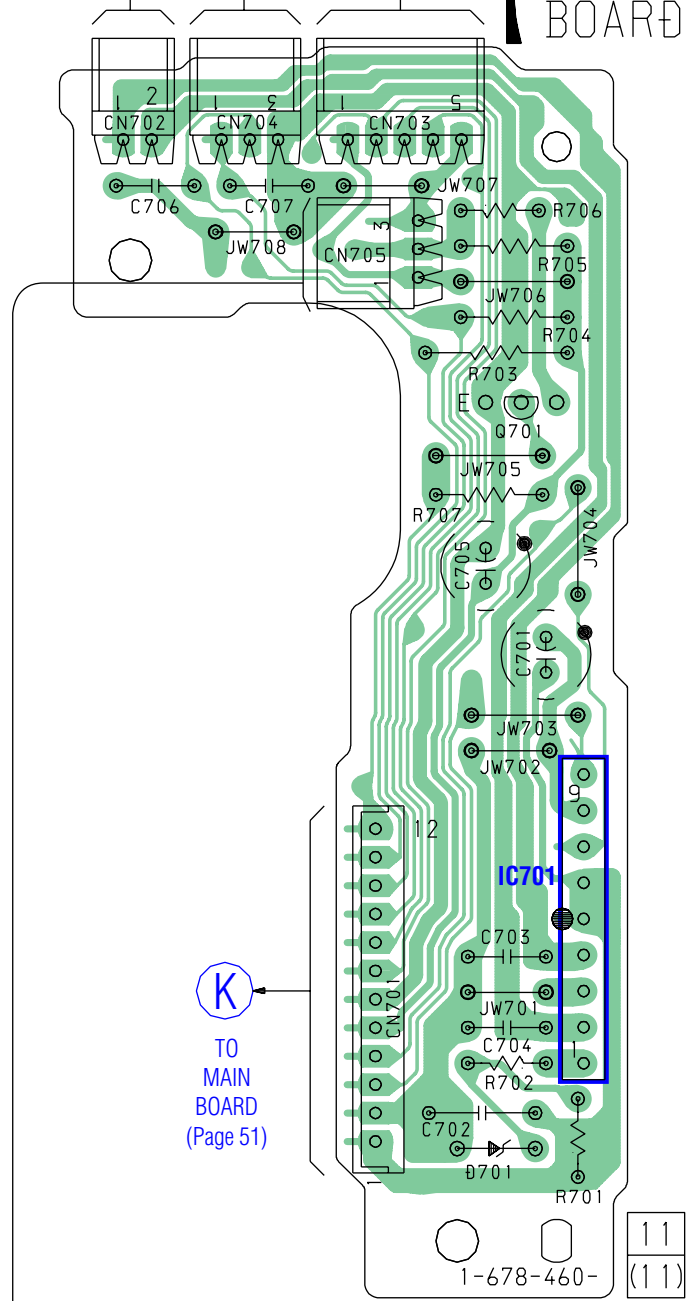
7-9. PRINTED WIRING BOARD DRIVER SECTION • See page 45 for Circuit Boards Location.

There are a few cases that the part printed on this diagram isn't mounted in this model.

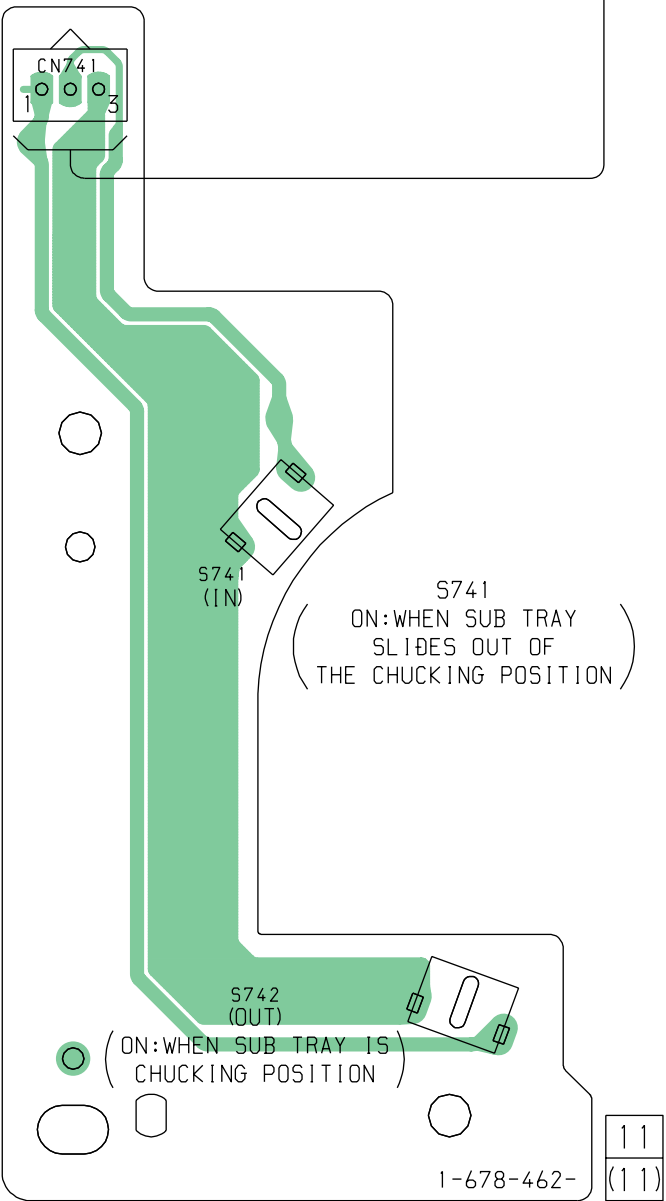
【TRAY SENSOR BOARD】



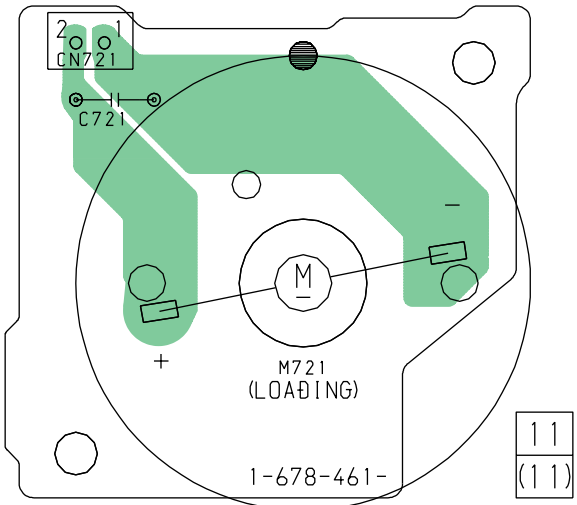
【DRIVER BOARD】



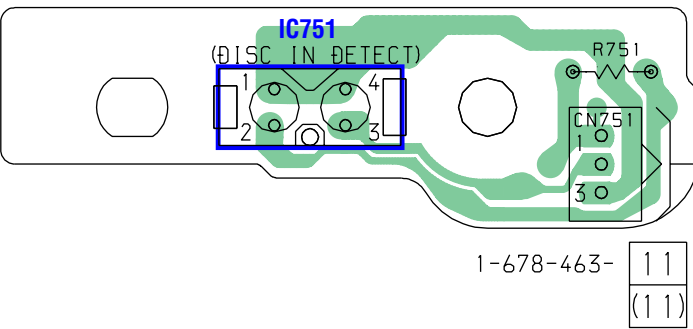
【IN OUT SW BOARD】



【MOTOR BOARD】

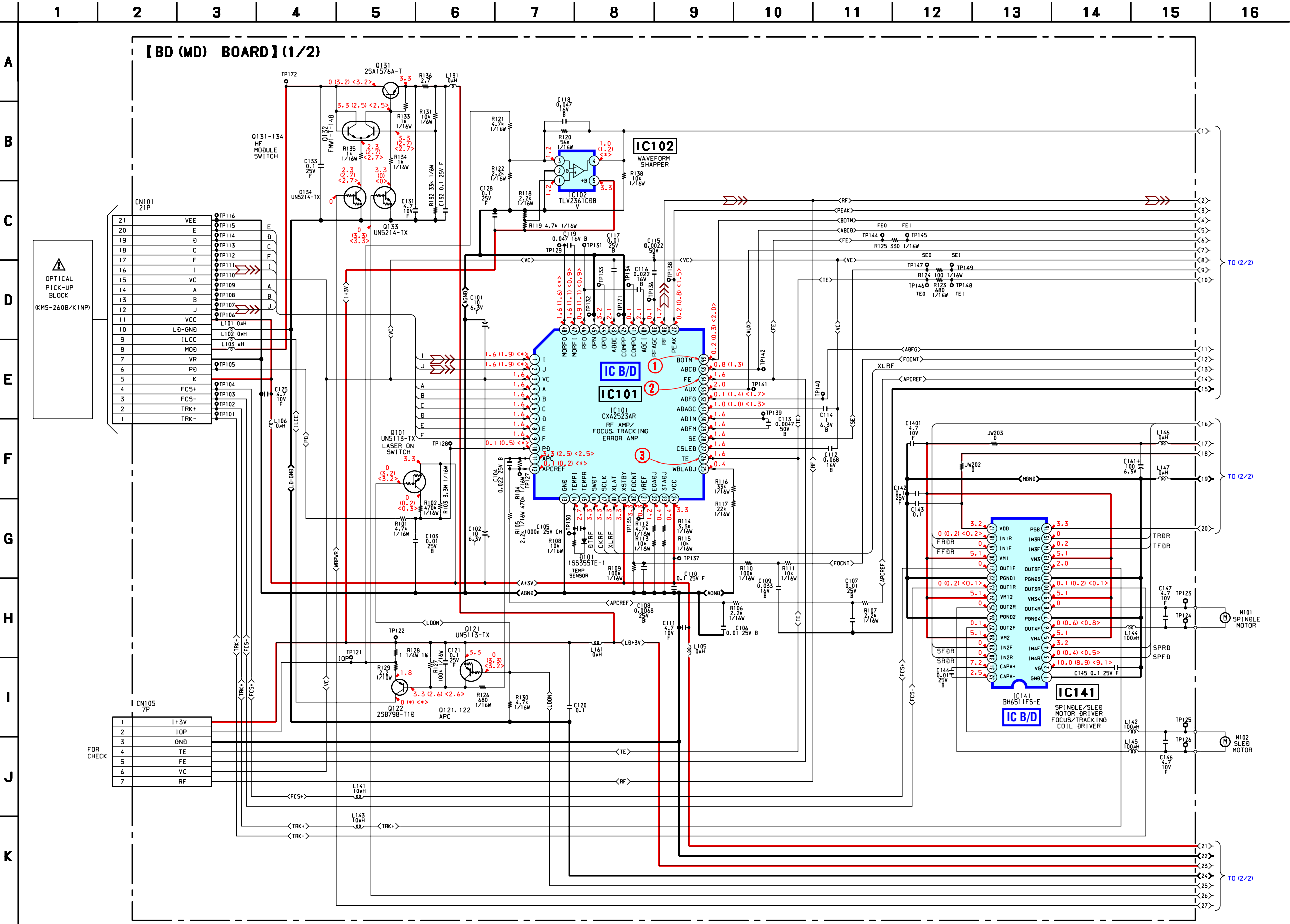


【DISC SENSOR BOARD】





- See page 74 for Waveforms.
- See page 77 for IC Pin Function Description.
- See page 86, 87 for IC Block Diagrams.



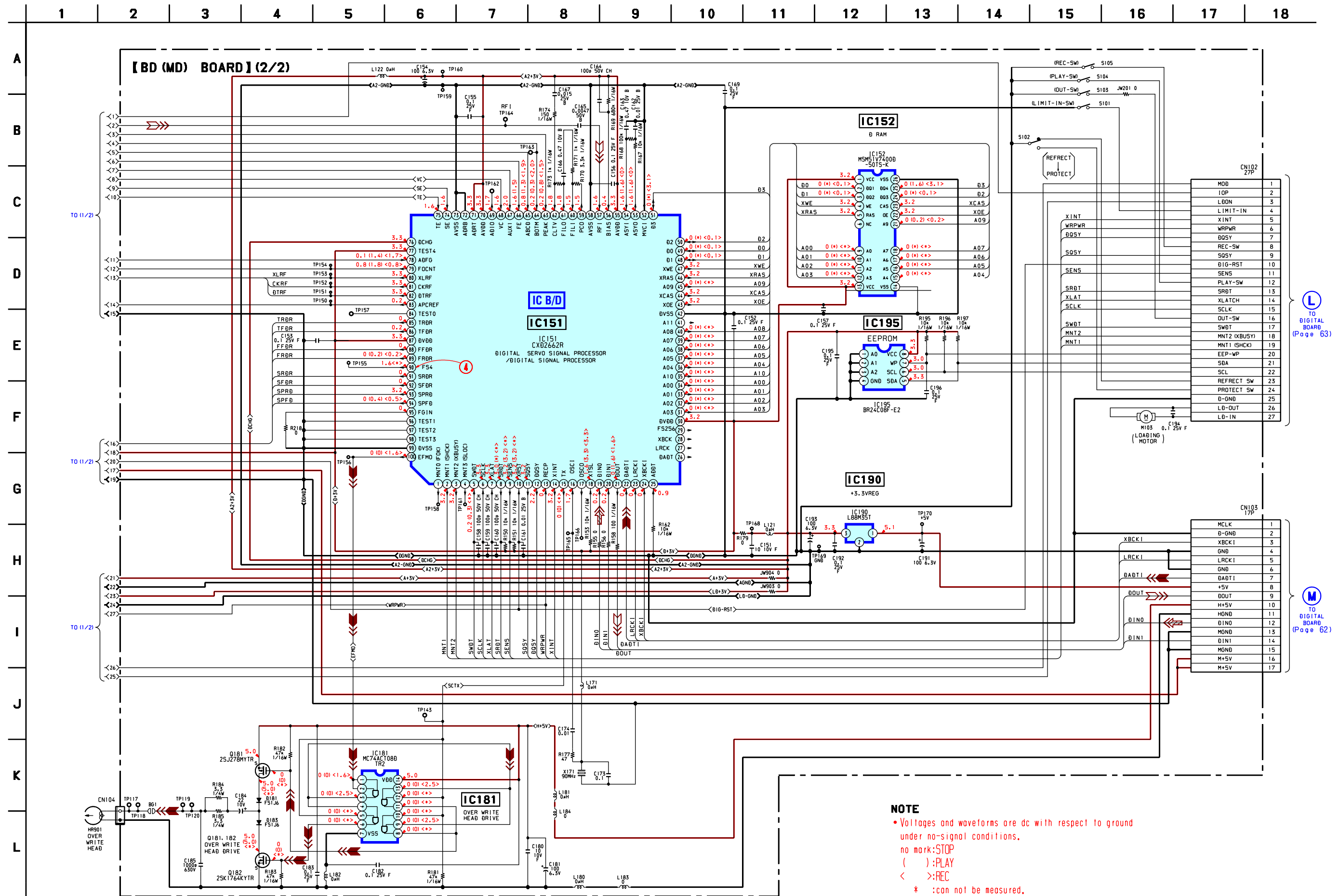
Note: The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

**NOTE**  
• Voltages and waveforms are dc with respect to ground under no-signal conditions.

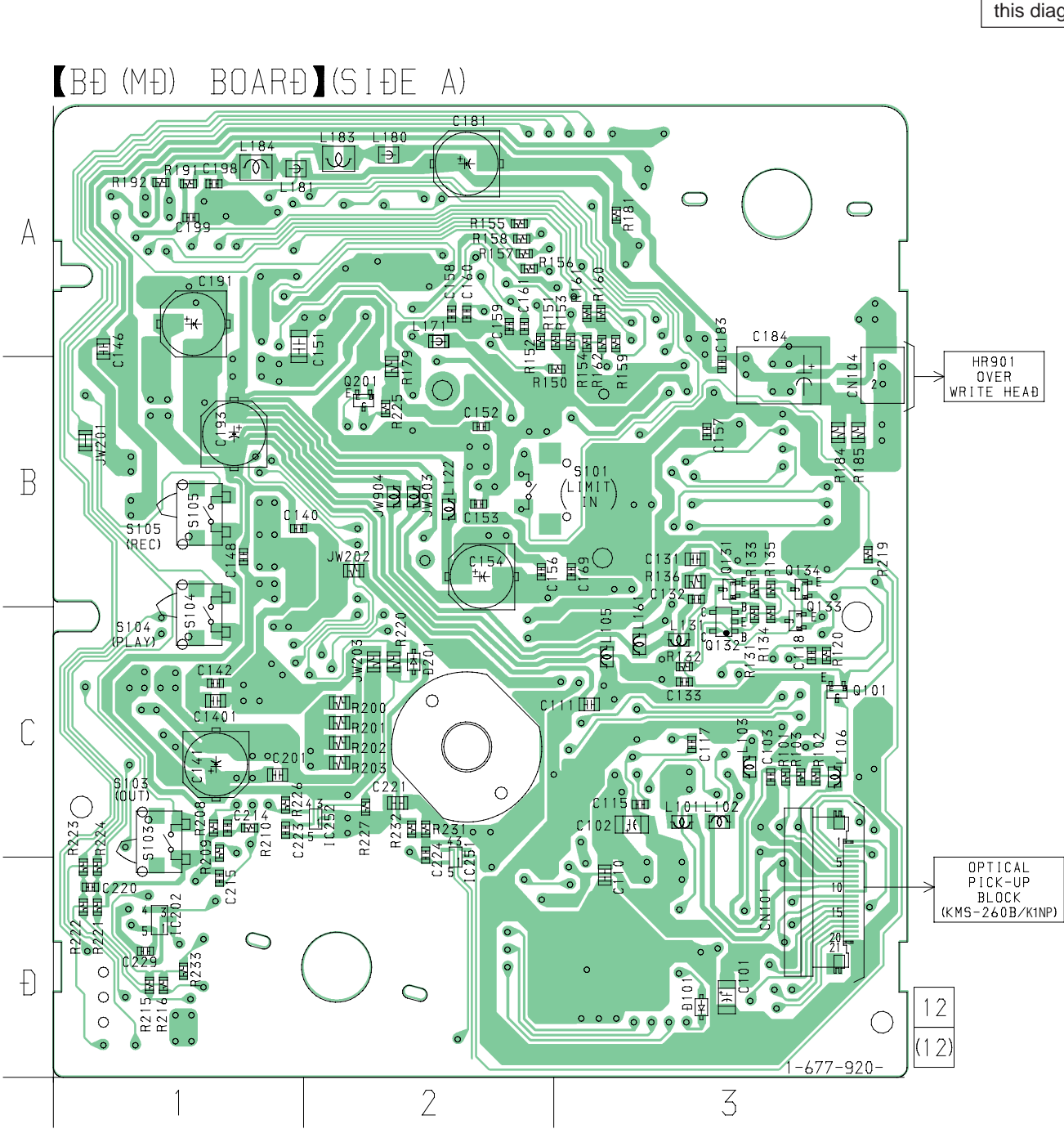
no mark: STOP  
( ): PLAY  
< >: REC  
\* : can not be measured.

## 7-11. SCHEMATIC DIAGRAM MD SECTION (2/2)

- See page 74 for Waveforms.
- See page 78 for IC Pin Function Description.
- See page 87 for IC Block Diagrams.

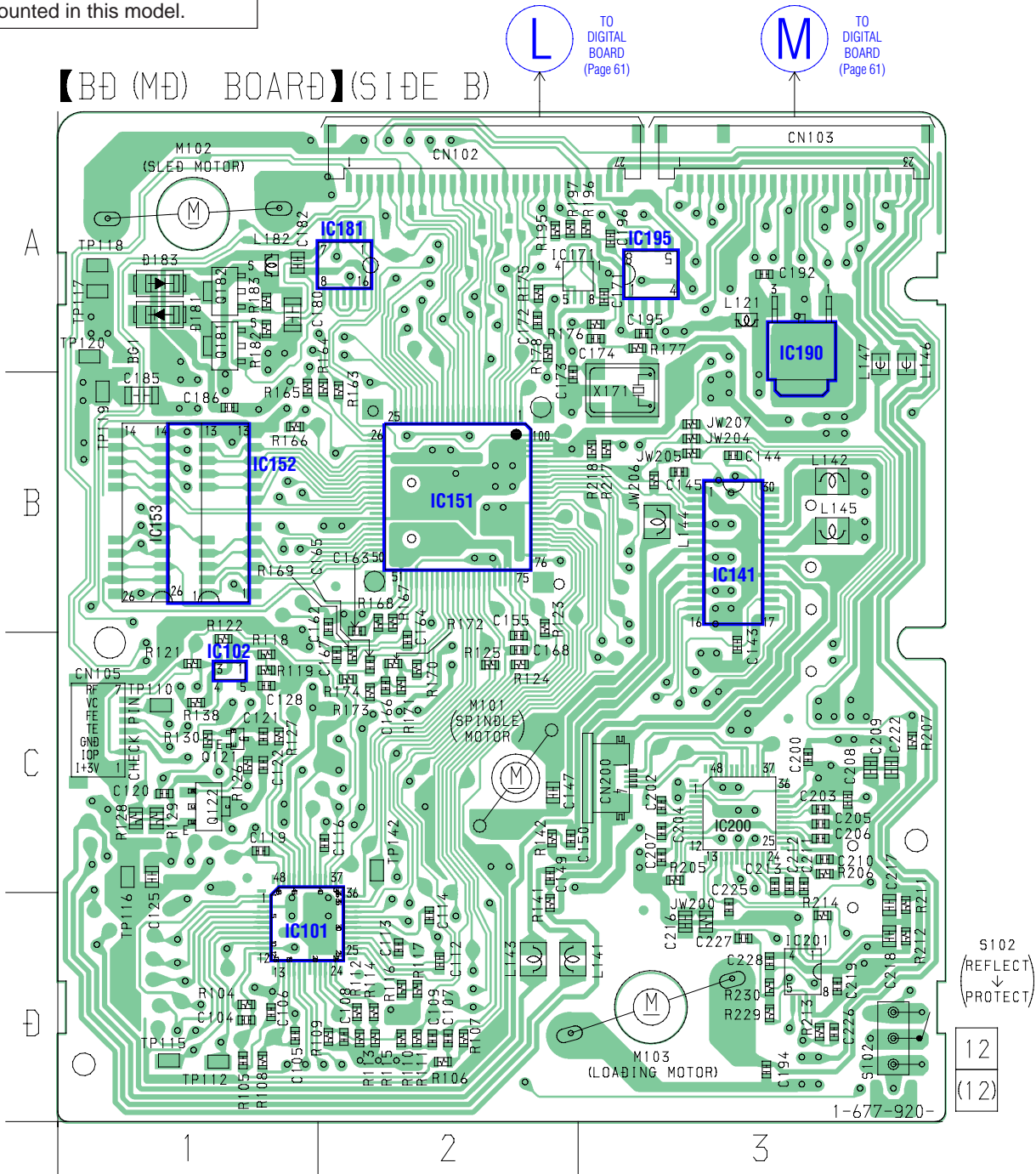


There are a few cases that the part printed on this diagram isn't mounted in this model.



• Semiconductor Location

Ref. No.	Location
D101	D-3
Q101	C-3
Q131	B-3
Q132	C-3
Q133	B-3
Q134	B-3



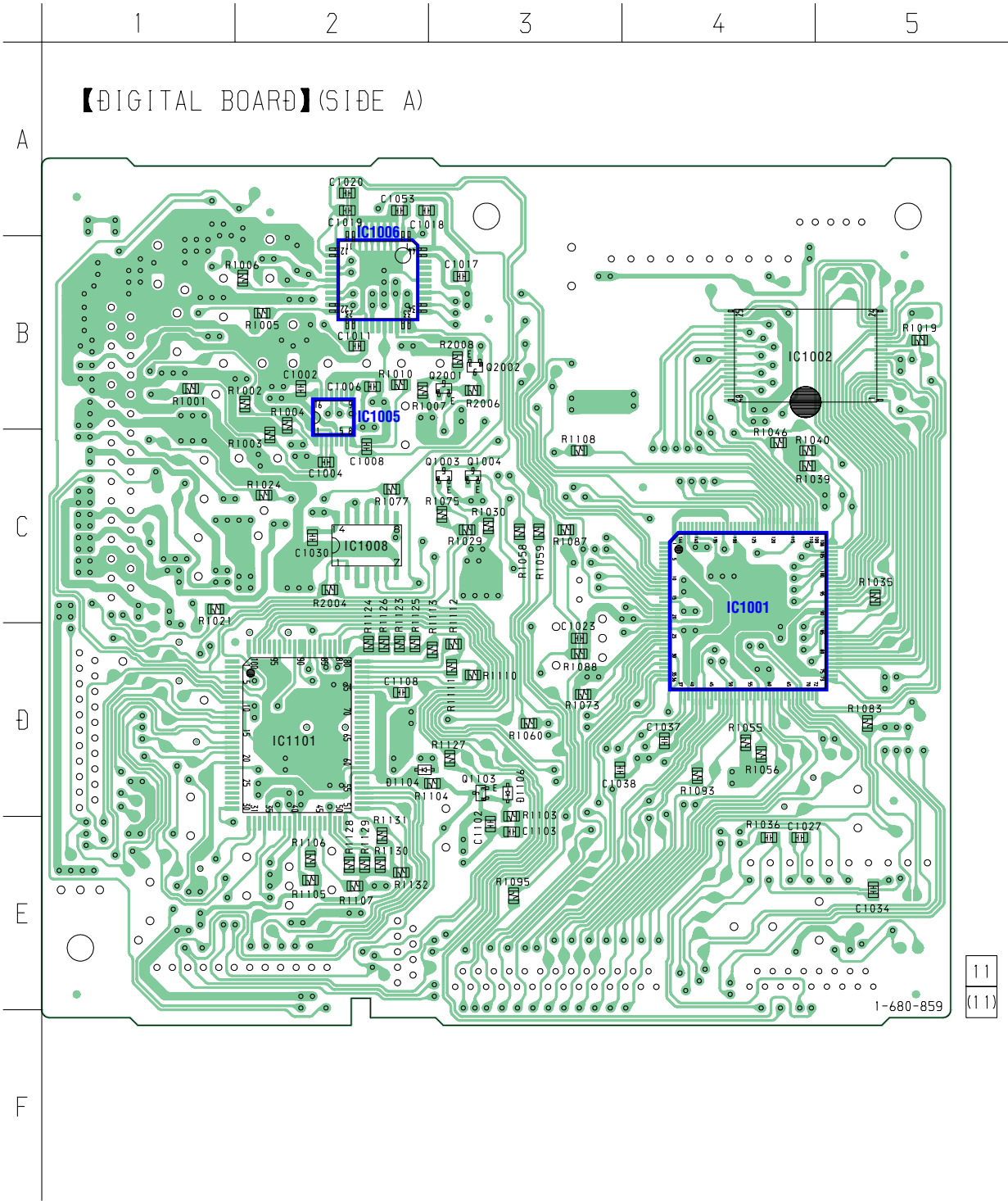
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D181	A-1	IC181	A-2
D183	A-1	IC190	A-3
		IC195	A-3
IC101	D-1	Q121	C-1
IC102	C-1	Q122	C-1
IC141	B-3	Q181	A-1
IC151	B-2	Q182	A-1
IC152	B-1		



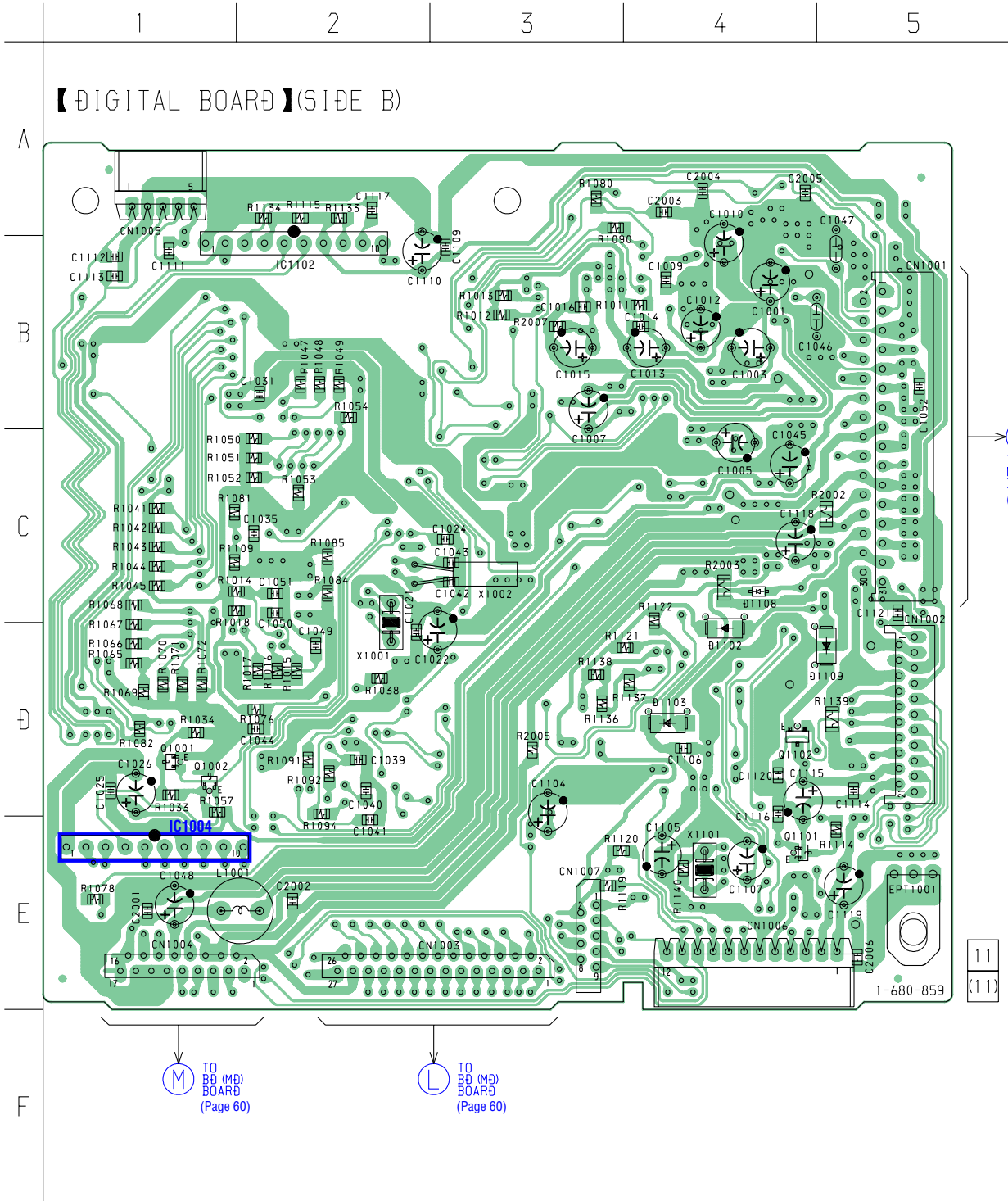
7-13. PRINTED WIRING BOARD DIGITAL SECTION • See page 45 for Circuit Boards Location.

There are a few cases that the part printed on this diagram isn't mounted in this model.



• Semiconductor Location

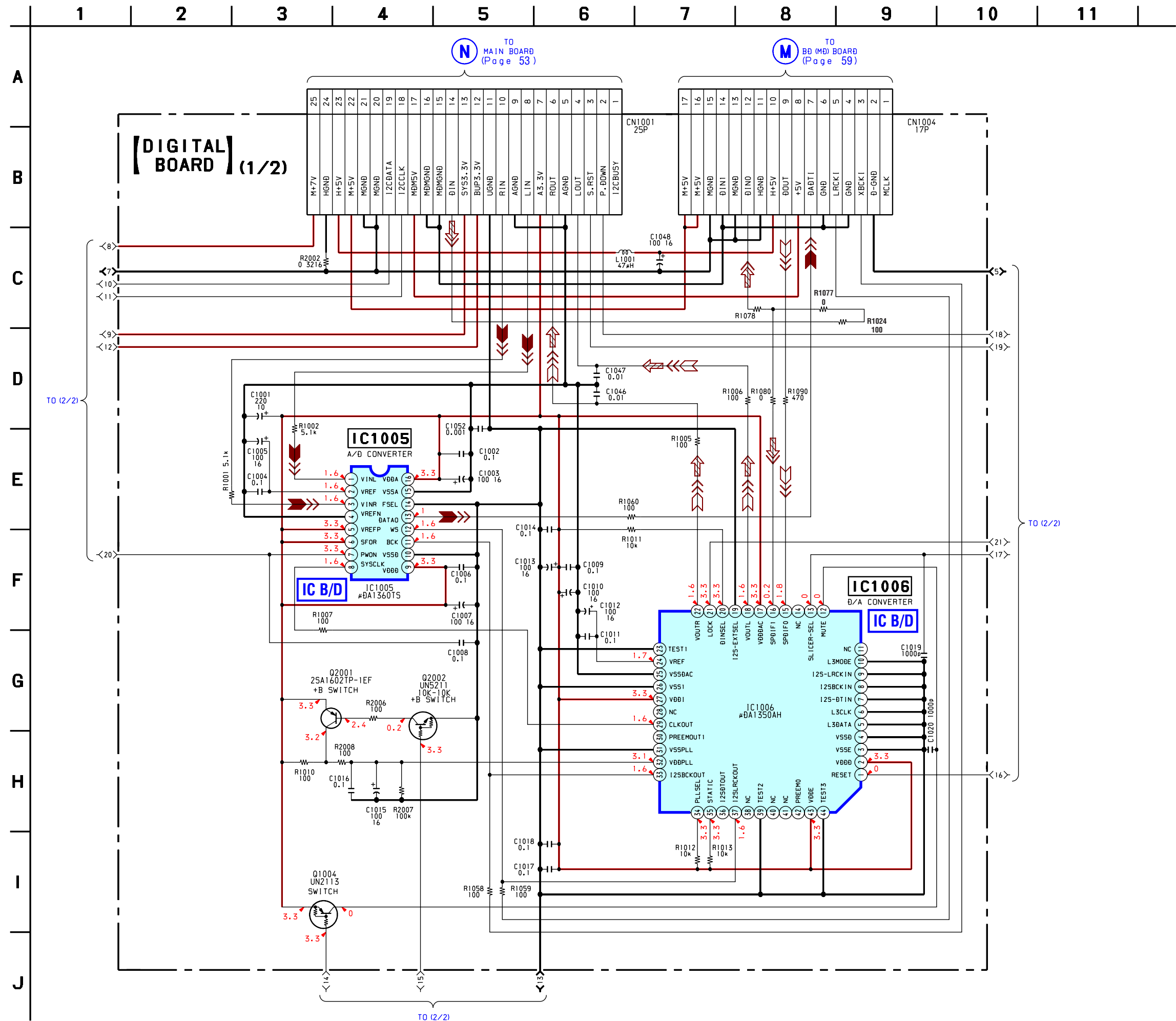
Ref. No.	Location
IC1001	C-4
IC1005	B-2
IC1006	B-2
Q1004	C-3
Q2001	B-3
Q2002	B-3



• Semiconductor Location

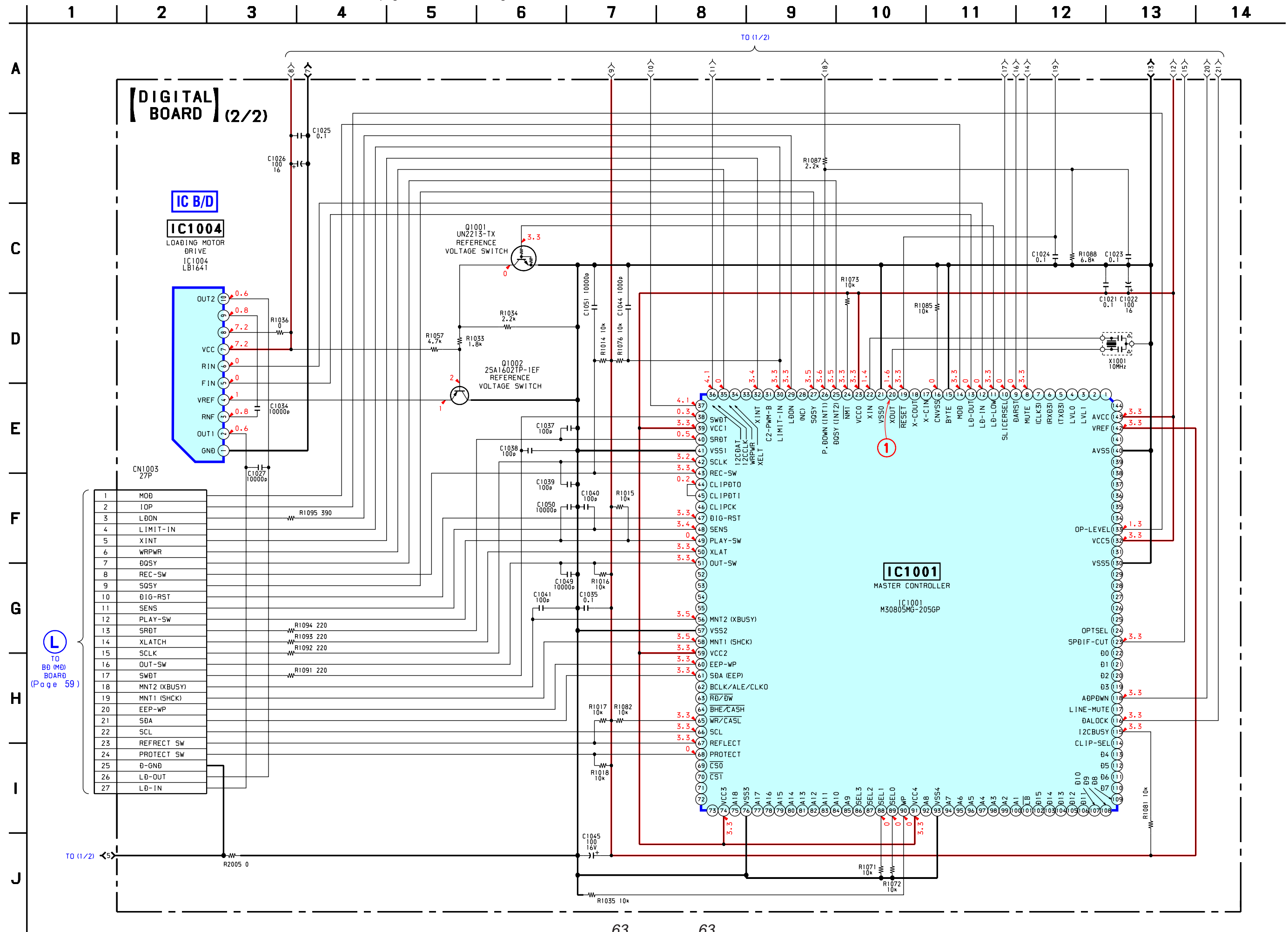
Ref. No.	Location
IC1004	E-1
Q1001	D-1
Q1002	D-1

**7-14. SCHEMATIC DIAGRAM DIGITAL SECTION (1/2)** • See page 88 for IC Block Diagrams.



### 7-15. SCHEMATIC DIAGRAM DIGITAL SECTION (2/2)

- See page 74 for Waveforms.
- See page 81 for IC Pin Function Description.
- See page 88 for IC Block Diagrams.

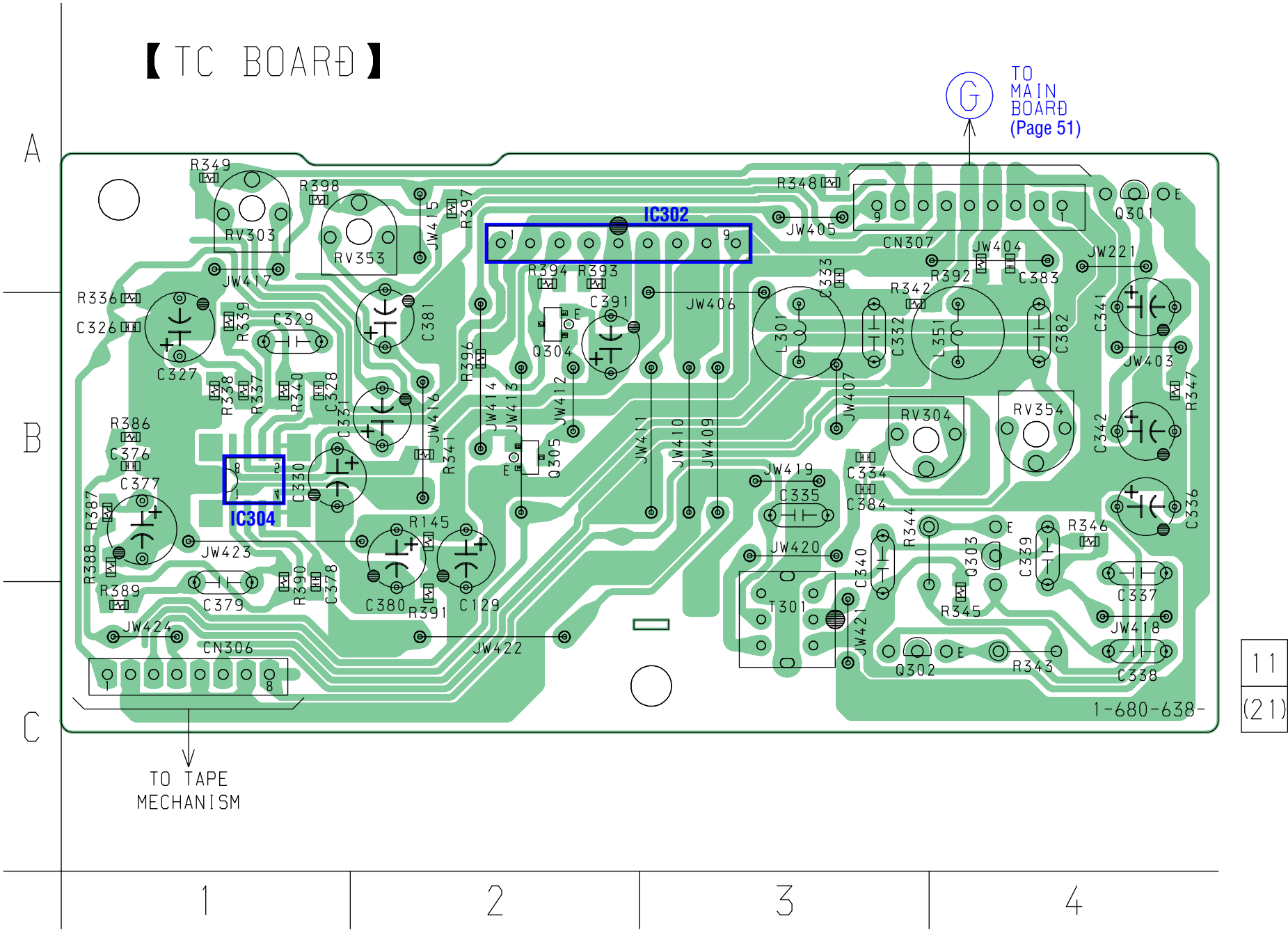




7-17. PRINTED WIRING BOARD TC SECTION

• See page 45 for Circuit Boards Location.

There are a few cases that the part printed on this diagram isn't mounted in this model.

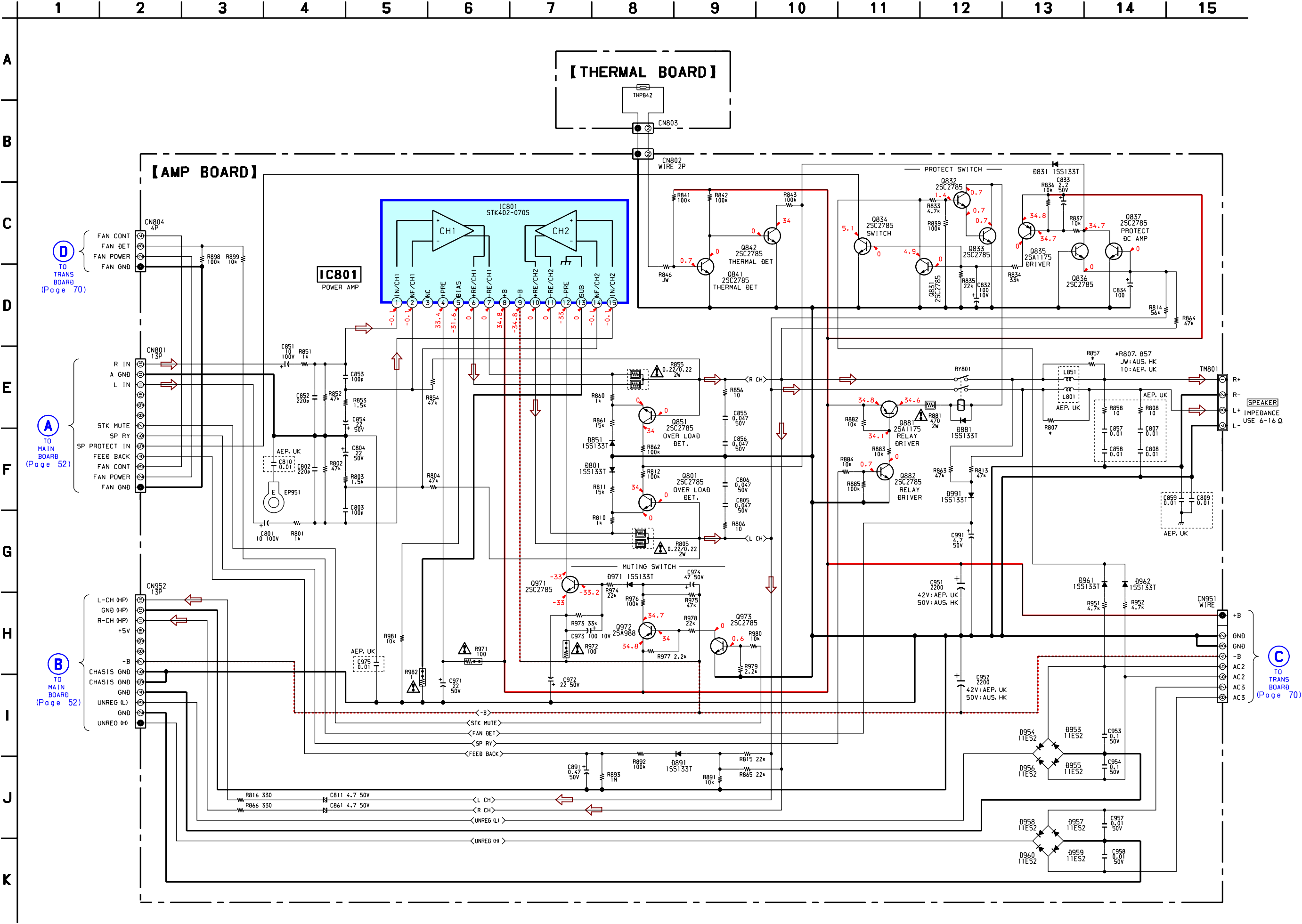


• Semiconductor Location

Ref. No.	Location
IC302	A-3
IC304	B-1
Q301	A-4
Q302	C-3
Q303	B-4
Q304	B-2
Q305	B-2

11  
(21)

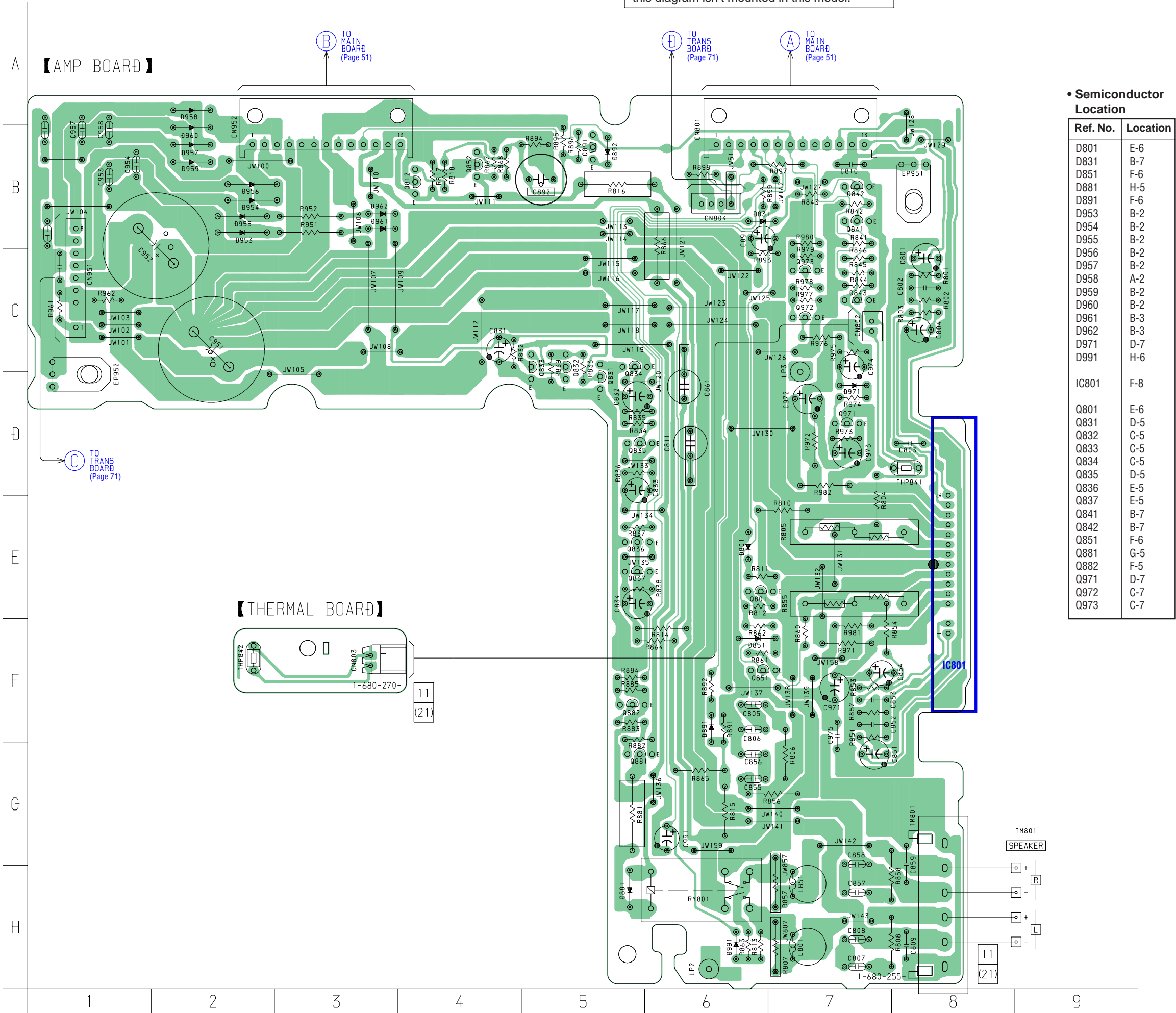




7-19. PRINTED WIRING BOARD AMP SECTION

• See page 45 for Circuit Boards Location.

There are a few cases that the part printed on this diagram isn't mounted in this model.

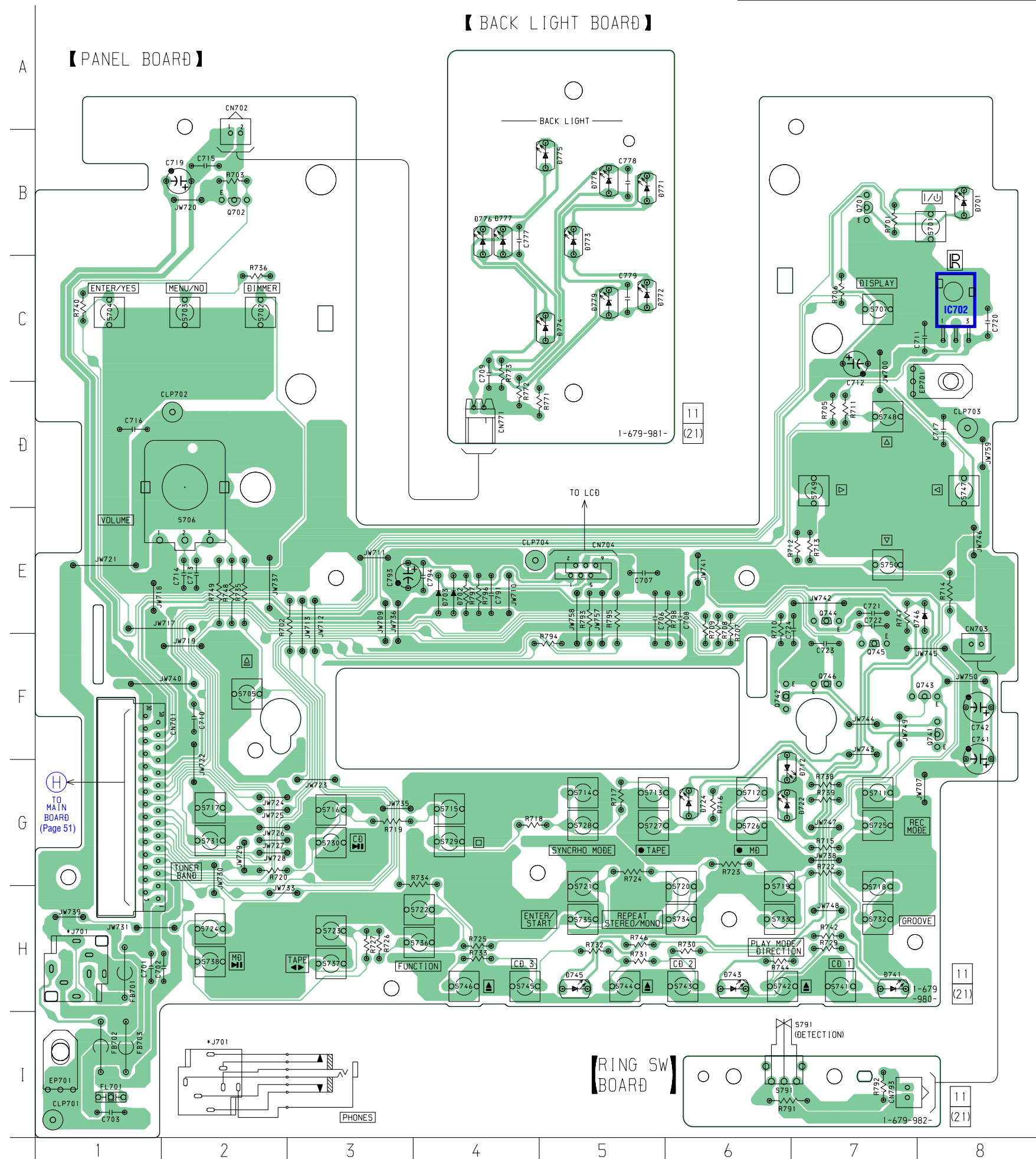




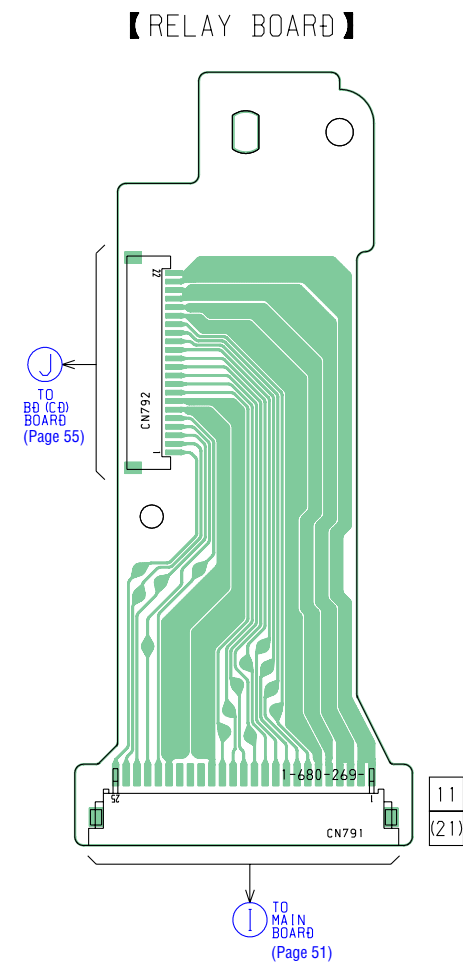


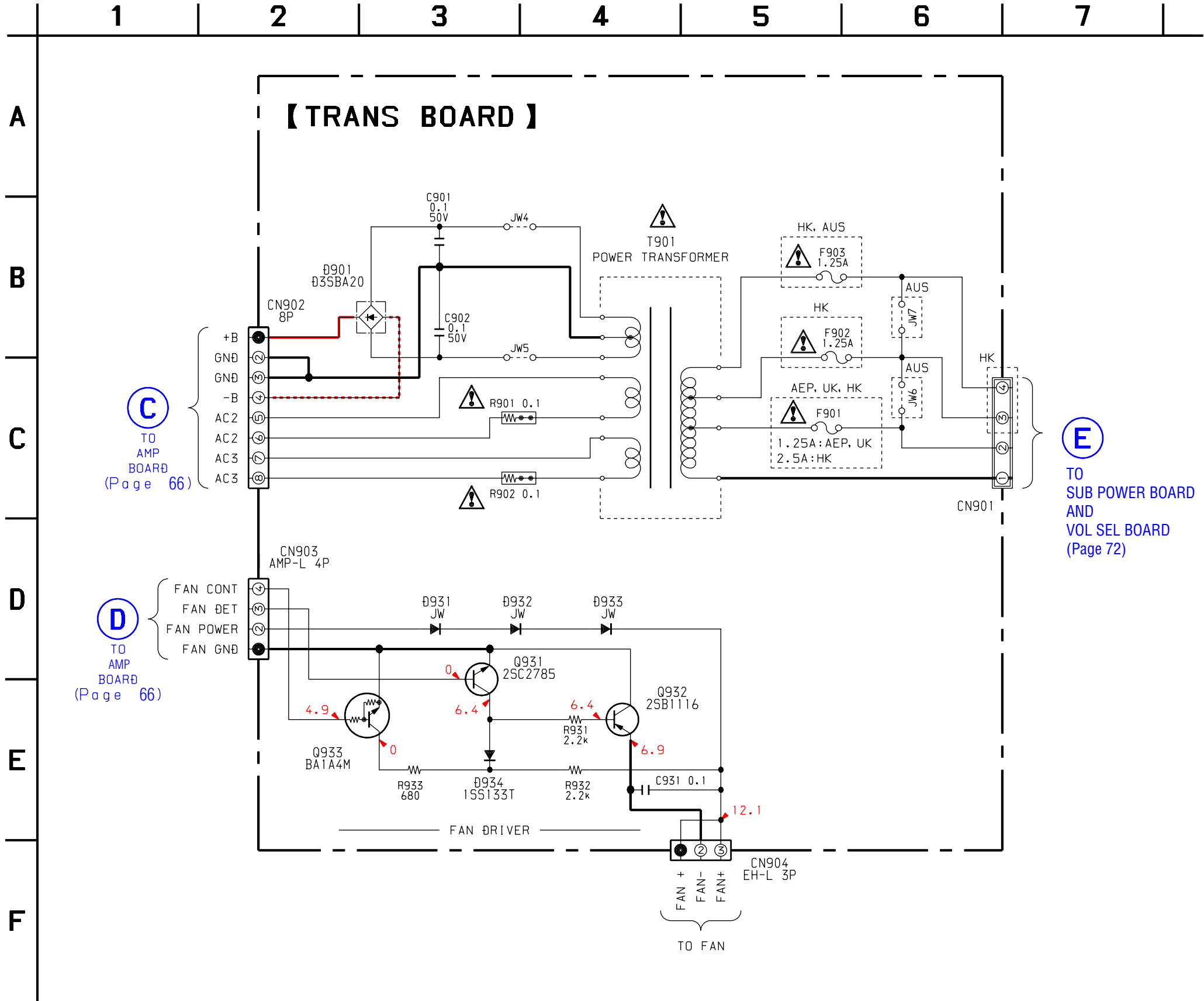
- See page 45 for Circuit Boards Location.

There are a few cases that the part printed on this diagram isn't mounted in this model.



Ref. No.	Location
D701	B-8
D702	E-4
D703	E-4
D722	G-6
D724	G-6
D741	H-7
D743	H-6
D745	H-5
D746	E-8
D771	B-5
D772	C-5
D773	B-5
D774	C-5
D775	B-5
D776	B-4
IC702	C-8
Q701	B-7
Q702	B-2
Q741	F-8
Q742	F-6
Q743	F-8
Q744	E-7
Q745	F-7
Q746	F-7

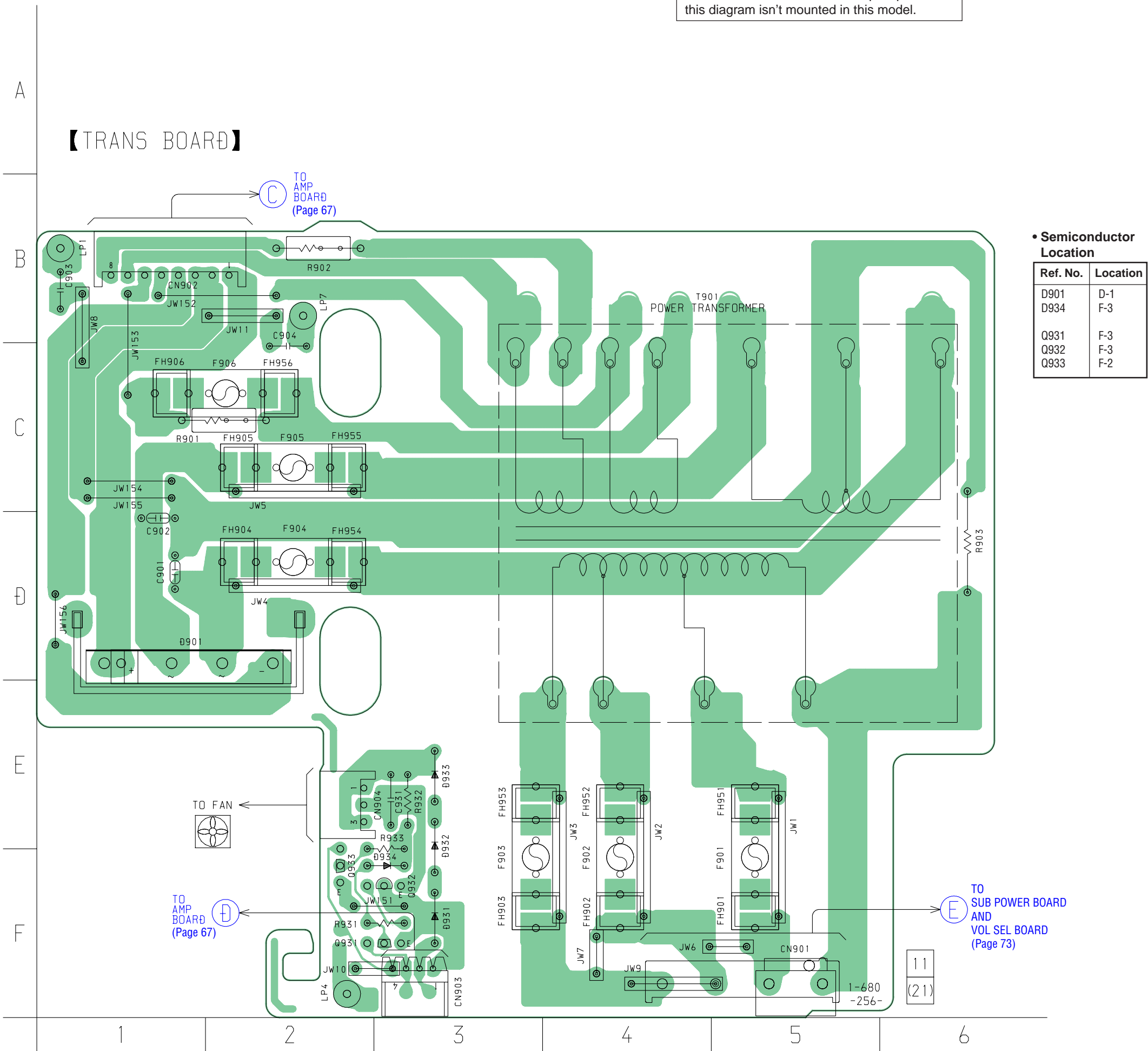


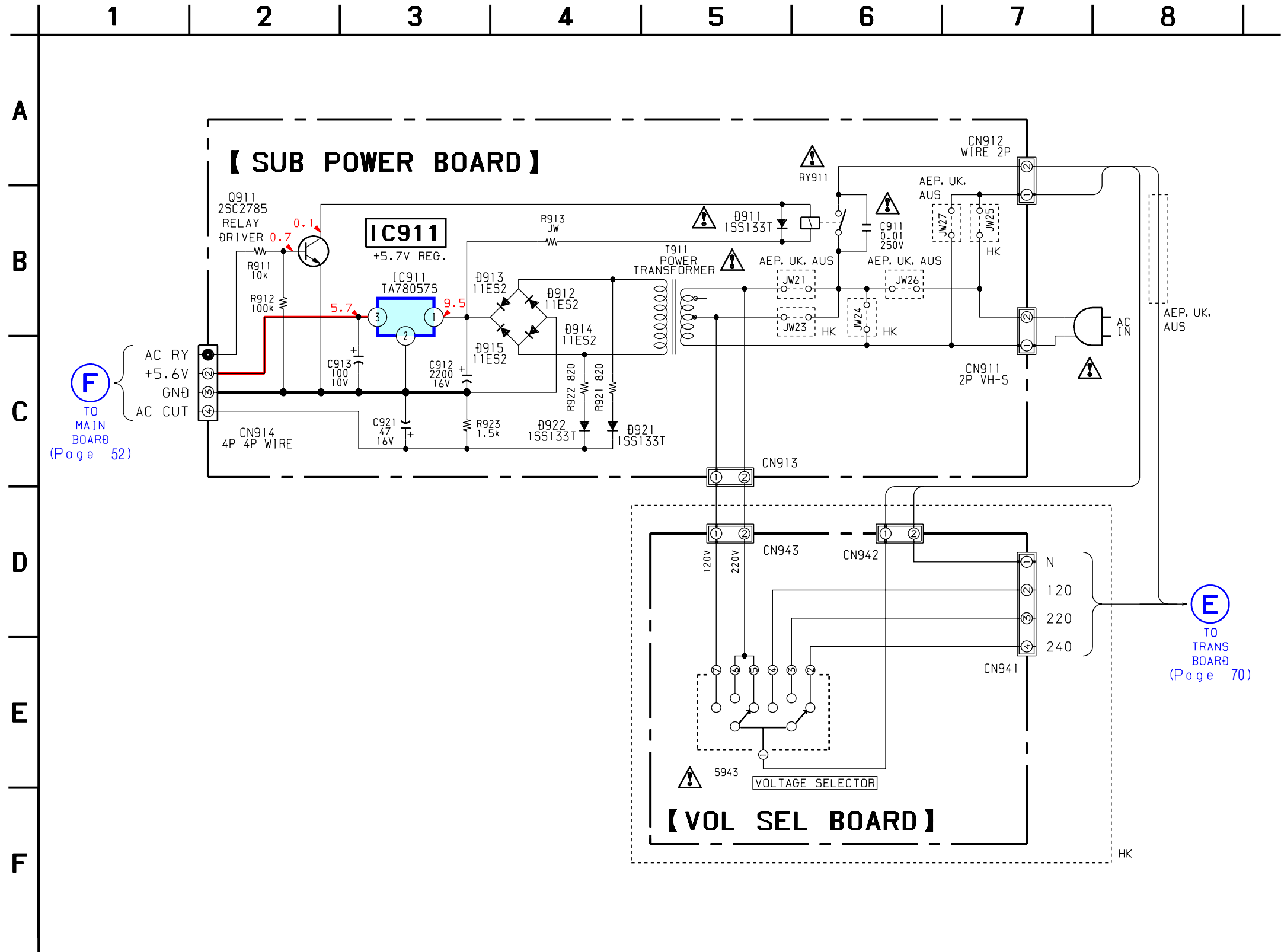


7-23. PRINTED WIRING BOARD TRANS SECTION

• See page 45 for Circuit Boards Location.

There are a few cases that the part printed on this diagram isn't mounted in this model.





- **Semiconductor Location**

**【 SUB POWER BOARD 】**

POWER TRANSFORMER T911

IC911

TO MAIN BOARD (Page 51)

**【 VOL SEL BOARD 】**

VOLTAGE SELECTOR

S943

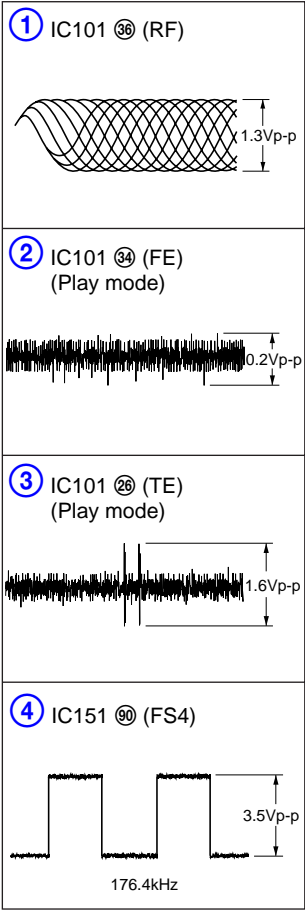
1-680-257-

1-680-258-

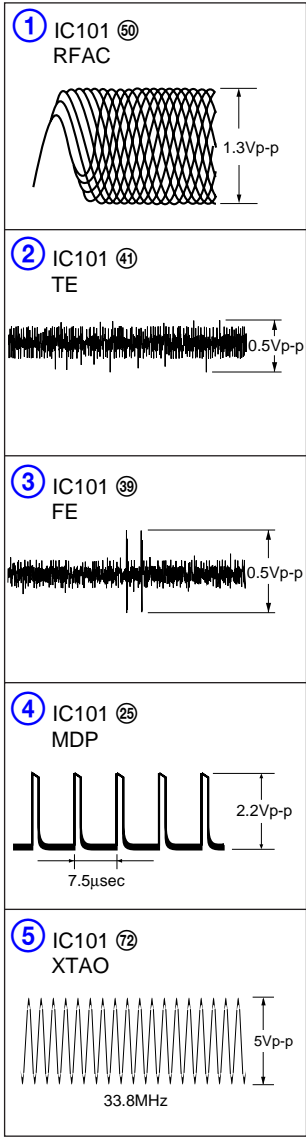
HCD-CL5MD

• WAVEFORMS

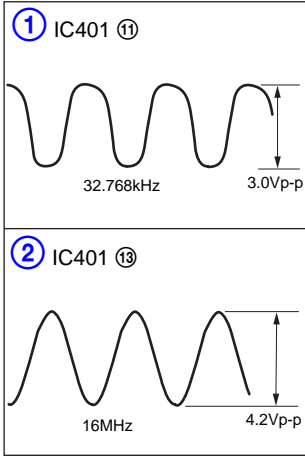
– BD (MD) SECTION –



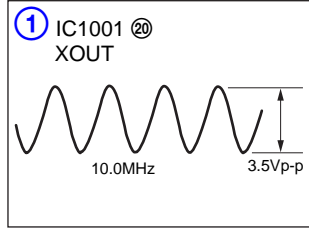
– BD (CD) SECTION –



– MAIN SECTION –



– MD DIGITAL SECTION –



## 7-26. IC PIN FUNCTIONS

## • IC101 DIGITAL SIGNAL PROCESSOR (CXD3068Q) (BD (CD) Board)

Pin No.	Pin Name	I/O	Function
1	DVDD0	—	Digital power supply
2	XRST	I	System reset
3	MUTE	I	Muting selection pin
4	DATA	I	Serial data input, supplied from CPU
5	XLAT	I	Latch input, supplied from CPU
6	CLOCK	I	Serial data transfer clock input, supplied from CPU
7	SENS	O	SENS output
8	SCLK	I	SENS serial data read-out clock
9	ATSK	I/O	Input pin for anti-shock (Ground)
10	WFCK	O	WFCK (Write Frame Clock) output (Not used)
11	XUGF	O	XUGF output (Not used)
12	XPCK	O	XPCK output (Not used)
13	GFS	O	GFS output (Not used)
14	C2P0	O	C2PO output
15	SCOR	O	Sub-code sync output
16	CM4	O	4.2336MHz output (Not used)
17	WDCK	O	48-bit slot D/A interface word clock (Not used)
18	DVSS	—	Digital ground
19	COUT	O	Numbers of track counted signal output (Not used)
20	MIRR	O	Mirror signal output (Not used)
21	DFCT	O	Defect signal output (Not used)
22	FOK	O	Focus OK output (Not used)
23	PWM1	I	(Not used)
24	LOCK	I/O	GFS in sampled by 460Hz (Not used)
25	MDP	O	Output to control spindle motor servo
26	SSTP	I	Input signal to detect disc inner most trak
27	FST0	O	2/3 divider output (Not used)
28	DVDD1	—	Digital power supply
29	SFDR	O	Sled drive output
30	SRDR	O	
31	TFDR	O	Tracking drive output
32	TRDR	O	
33	FFDR	O	Focus drive output
34	FRDR	O	
35	DVSS1	—	Digital ground
36	TEST	I	TEST pin connected normally ground
37	TES1	I	
38	VC	I	Center voltage input
39	FE	I	FOCUS error signal input
40	SE	I	Sled error signal input

Pin No.	Pin Name	I/O	Function
41	TE	I	Tracking error signal input
42	CE	I	Center servo analog input
43	RFDC	I	RF signal input
44	ADIO	O	Test pin (Not used)
45	AVSS0	—	Analog ground
46	IGEN	I	Power supply pin operational amplifiers
47	AVDD	—	Analog power supply
48	ASYO	O	EFM full swing output
49	ASYI	I	Asymmetry compare voltage input
50	RFAC	I	EFM signal input
51	AVSS1	—	Analog ground
52	CLTV	I	Control voltage input for master VCO
53	FILO	O	Filter output for master PLL
54	FILI	I	Filter input for master PLL
55	PCO	O	Charge-pump output for master PLL
56	AVDD1	—	Analog power supply
57	BIAS	I	Asymmetry circuit constant current input
58	VCTL	I	Control voltage input for variable pitch PLL
59	V16M	I/O	16.9344MHz output (Not used)
60	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
61	DVDD2	—	Digital power supply
62	ASYE	I	Asymmetry circuit ON/OFF (Connected to +5V.)
63	MD2	I	Digital-out ON/OFF control (Connected to +5V.)
64	DOUT	O	Digital-out output
65	LRCK	O	48-bit slot D/A interface, LR clock output
66	PCMD	O	48-bit slot D/A interface, Serial data output
67	BCLK	O	48-bit slot D/A interface, bit clock output
68	EMPH	O	Playback disc output in emphasis mode (Not used)
69	XTSL	I	X'tal selection input pin
70	DVSS2	—	Digital ground
71	XTAI	I	X'tal oscillator circuit input
72	XTAO	O	X'tal oscillator circuit output (Not used)
73	SOUT	O	(Not used)
74	SOCK	O	
75	XOCT	O	
76	SQSO	O	Sub-Q serial output
77	SQCK	I	Clock input for SQSO read-out
78	SCSY	I	Sub-code input
79	SBSO	O	Sub-P through Sub-W serial output (Not used)
80	EXCR	I	Clock input for SBSO read-out



## • IC101 CXA2523AR RF Amplifier (BD (MD) BOARD)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input
2	J	I	I-V converted RF signal J input
3	VC	O	Middle point voltage (+1.5V) generation output
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input
11	APC	O	Laser APC output
12	APCREF	I	Reference voltage input for setting laser power
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection
15	TEMPR	O	Reference voltage output for the temperature sensor
16	SWDT	I	Serial data input from the CXD2662R
17	SCLK	I	Serial clock input from the CXD2662R
18	XLAT	I	Latch signal input from the CXD2662R “L”: Latch
19	XSTBY	I	Stand by signal input “L”: Stand by
20	FOCNT	I	Center frequency control voltage input of BPF22, BPF3T, EQ from the CXD2662R
21	VREF	O	Reference voltage output (Not used)
22	EQADJ	I/O	Center frequency setting pin for the internal circuit EQ
23	3TADJ	I/O	Center frequency setting pin for the internal circuit BPF3T
24	Vcc	—	+3V power supply
25	WBLADJ	I/O	Center frequency setting pin for the internal circuit BPF22
26	TE	O	Tracking error signal output to the CXD2662R
27	CSLED	—	External capacitor connection pin for the sled error signal LPF
28	SE	O	Sled error signal output to the CXD2662R
29	ADFM	O	FM signal output of ADIP
30	ADIN	I	ADIP signal comparator input ADFM is connected with AC coupling
31	ADAGC	—	External capacitor connection pin for AGC of ADIP
32	ADFG	O	ADIP duplex signal output to the CXD2662R
33	AUX	O	I3 signal/temperature signal output to the CXD2662R (Switching with a serial command)
34	FE	O	Focus error signal output to the CXD2662R
35	ABCD	O	Light amount signal output to the CXD2662R
36	BOTM	O	RF/ABCD bottom hold signal output to the CXD2662R
37	PEAK	O	RF/ABCD peak hold signal output to the CXD2662R
38	RF	O	RF equalizer output to the CXD2662R
39	RFAGC	—	External capacitor connection pin for the RF AGC circuit
40	AGCI	I	Input to the RF AGC circuit The RF amplifier output is input with AC coupling
41	COMPO	O	User comparator output (Not used)
42	COMPP	I	User comparator input (Fixed at “L”)
43	ADDC	I/O	External capacitor pin for cutting the low band of the ADIP amplifier
44	OPO	O	User operation amplifier output (Not used)
45	OPN	I	User operation amplifier inversion input (Fixed at “L”)
46	RFO	O	RF amplifier output
47	MORFI	I	Groove RF signal is input with AC coupling
48	MORFO	O	Groove RF signal output

## • Abbreviation

APC: Auto Power Control

AGC: Auto Gain Control

## • IC151 CXD2662R Digital Signal Processor, Digital Servo Signal Processor (BD (MD) BOARD)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	FOK signal output to the system control (monitor output) “H” is output when focus is on
2	MNT1 (SHCK)	O	Track jump detection signal output to the system control (monitor output)
3	MNT2 (XBUSY)	O	Monitor 2 output to the system control (monitor output)
4	MNT3 (SLOC)	O	Monitor 3 output to the system control (monitor output)
5	SWDT	I	Writing data signal input from the system control
6	SCLK	I (S)	Serial clock signal input from the system control
7	XLAT	I (S)	Serial latch signal input from the system control
8	SRDT	O (3)	Reading data signal output to the system control
9	SENS	O (3)	Internal status (SENSE) output to the system control
10	XRST	I (S)	Reset signal input from the system control “L”: Reset
11	SQSY	O	Subcode Q sync (SCOR) output to the system control “L” is output every 13.3 msec. Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format or MD format subcode Q sync (SCOR) output to the system control
13	RECP	I	Laser power switching input from the system control “H”: Recording, “L”: Playback
14	XINT	O	Interrupt status output to the system control
15	TX	I	Recording data output enable input from the system control
16	OSCI	I	System clock input (512Fs=22.5792 MHz)
17	OSCO	O	System clock output (512Fs=22.5792 MHz) (Not used)
18	XTSL	I	System clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (Fixed at “H”)
19	DIN0	I	Digital audio input (Optical input)
20	DIN1	I	Digital audio input (Optical input)
21	DOUT	O	Digital audio output (Optical output)
22	DADTI	I	Serial data input
23	LRCKI	I	LR clock input “H” : Lch, “L” : R ch
24	XBCKI	I	Serial data clock input
25	ADDT	I	Data input from the A/D converter
26	DADT	O	Data output to the D/A converter
27	LRCK	O	LR clock output for the A/D and D/A converter (44.1 kHz)
28	XBCK	O	Bit clock output to the A/D and D/A converter (2.8224 MHz)
29	FS256	O	11.2896 MHz clock output (Not used)
30	DVDD	—	+3V power supply (Digital)
31 to 34	A03 to A00	O	DRAM address output
35	A10	O	DRAM address output (Not used)
36 to 40	A04 to A08	O	DRAM address output
41	A11	O	DRAM address output (Not used)
42	DVSS	—	Ground (Digital)
43	XOE	O	Output enable output for DRAM
44	XCAS	O	CAS signal output for DRAM
45	A09	O	Address output for DRAM
46	XRAS	O	RAS signal output for DRAM
47	XWE	O	Write enable signal output for DRAM

\* I (S) stands for Schmidt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O

Pin No.	Pin Name	I/O	Function
48	D1	I/O	Data input/output for DRAM
49	D0	I/O	
50, 51	D2, D3	I/O	
52	MVCI	I (S)	Clock input from an external VCO (Fixed at “L”)
53	ASYO	O	Playback EFM duplex signal output
54	ASYI	I (A)	Playback EFM comparator slice level input
55	AVDD	—	+3V power supply (Analog)
56	BIAS	I (A)	Playback EFM comparator bias current input
57	RFI	I (A)	Playback EFM RF signal input
58	AVSS	—	Ground (Analog)
59	PCO	O (3)	Phase comparison output for the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for the recording/playback EFM master PLL
61	FILO	O (A)	Filter output for the recording/playback EFM master PLL
62	CLTV	I (A)	Internal VCO control voltage input for the recording/playback EFM master PLL
63	PEAK	I (A)	Light amount signal peak hold input from the CXA2523AR
64	BOTM	I (A)	Light amount signal bottom hold input from the CXA2523AR
65	ABCD	I (A)	Light amount signal input from the CXA2523AR
66	FE	I (A)	Focus error signal input from the CXA2523AR
67	AUX1	I (A)	Auxiliary A/D input
68	VC	I (A)	Middle point voltage (+1.5V) input from the CXA2523AR
69	ADIO	O (A)	Monitor output of the A/D converter input signal (Not used)
70	AVDD	—	+3V power supply (Analog)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input (Fixed at “H”)
72	ADRB	I (A)	A/D converter operational range lower limit voltage input (Fixed at “L”)
73	AVSS	—	Ground (Analog)
74	SE	I (A)	Sled error signal input from the CXA2523AR
75	TE	I (A)	Tracking error signal input from the CXA2523AR
76	DCHG	I (A)	Connected to +3V power supply
77	APC	I (A)	Error signal input for the laser digital APC (Fixed at “L”)
78	ADFG	I (S)	ADIP duplex FM signal input from the CXA2523AR (22.05 ± 1 kHz)
79	FOCNT	O	Filter f <sub>0</sub> control output to the CXA2523AR
80	XLRF	O	Control latch output to the CXA2523AR
81	CKRF	O	Control clock output to the CXA2523AR
82	DTRF	O	Control data output to the CXA2523AR
83	APCREF	O	Reference PWM output for the laser APC
84	TEST0	O	PWM output for the laser digital APC (Not used)
85	TRDR	O	Tracking servo drive PWM output (—)

- Abbreviation  
 EFM: Eight to Fourteen Modulation  
 PLL : Phase Locked Loop  
 VCO: Voltage Controlled Oscillator

## HCD-CL5MD

Pin No.	Pin Name	I/O	Function
86	TFDR	O	Tracking servo drive PWM output (+)
87	DVDD	—	+3V power supply (Digital)
88	FFDR	O	Focus servo drive PWM output (+)
89	FRDR	O	Focus servo drive PWM output (–)
90	FS4	O	176.4 kHz clock signal output (X’tal) (Not used)
91	SRDR	O	Sled servo drive PWM output (–)
92	SFDR	O	Sled servo drive PWM output (+)
93	SPRD	O	Spindle servo drive PWM output (–)
94	SPFD	O	Spindle servo drive PWM output (+)
95	FGIN	I (S)	Test input (Fixed at “L”)
96 to 98	TEST1 to TEST3	I	
99	DVSS	—	Ground (Digital)
100	EFMO	O	EFM output when recording

- Abbreviation  
EFM: Eight to Fourteen Modulation

## • IC1001 M30805MG-205GP SYSTEM CONTROL (DIGITAL BOARD)

Pin No.	Pin Name	I/O	Function
1	_____	—	Not used.
2	_____	—	Not used.
3	LVLI	—	Not used.
4	LVLO	—	Not used.
5	(TXD3)	—	Not used.
6	(RXD3)	—	Not used.
7	(CLK3)	—	Not used.
8	MUTE	O	Line out muting output. L: Mute
9	DARST	O	Reset signal output to the D/A converter. L: Active
10	SLICERSEL	O	IEC958 input select signal output to the D/A converter. L: CD H: MD
11	LD-LOW	O	Loading motor voltage control output L: High voltage H: Low voltage
12	LDIN	I	Loading motor control input. H: IN
13	LDOUT	O	Loading motor control output. H: OUT
14	MOD	O	Laser modulation switching signal output. L: OFF H: ON
15	BYTE	I	Data bus changed input. (Connected to ground.)
16	CNVSS	—	Ground.
17	X-CIN	O	Sub clock input. (32.768kHz) (Not used.)
18	X-COUT	O	Sub clock output. (32.768kHz) (Not used.)
19	RESET	I	System rest input. L : ON
20	XOUT	O	Main clock output. (10MHz)
21	VSS0	—	Ground.
22	XIN	I	Main clock input. (10MHz)
23	VCC0	—	Power supply. (+3.3V)
24	NMI	I	Fixed at H. (Pull-up)
25	DQSY	I	Digital in sync input. (Record system)
26	P.DOWN	I	Power down detection input. L: Power down
27	SQSY	I	ADIP (MO) sync or subcode Q (PIT) sync input from CXD2662R.(Playback system)
28	NC	—	Not used.
29	LDON	O	Laser ON/OFF control output. H: Laser ON
30	LIMIT-IN	I	Detection input from the limit switch. L: Sled limit-In H: Sled limit-Out
31	C2-PWM-B	—	Not used.
32	XINIT	I	Interrupt status input from CXD2662R.
33	_____	—	Not used.
34	XELT	I	XELT input from DSP IC.
35	WR PWR	O	Write power ON/OFF output. L: OFF H: ON
36	IIC CLK	I/O	IIC serial clock input/output.
37	IIC DATA	I/O	IIC serial data input/output.
38	SWDT	O	Writing data signal output to the serial bus.
39	VCC1	—	Power supply. (+3.3V)
40	SRDT	I	Reading data signal input from the serial bus.
41	VSS1	—	Ground.
42	SCLK	O	Clock signal output to the serial bus.
43	REC-SW	I	Detection signal input from the recording position detection switch. L: REC
44	CLIP DTO	O	CLIP serial data output.
45	CLIPDTI	I	CLIP serial data input. (Not used.)
46	CLIP CLK	O	CLIP serial clock output. (Not used.)
47	DIG-RST	O	Digital rest signal output to the CXD2662R and motor driver. L: Reset
48	SENS	I	Internal status (SENSE) input from the CXD2662R.
49	PLAY-SW	I	Detection signal input from the playback position detection switch. L: PLAY
50	XLAT	O	Latch signal output to DSP IC.
51	OUT-SW	I	Detection signal input from the loading out detection switch.
52	_____	—	Not used.

# HCD-CL5MD

Pin No.	Pin Name	I/O	Function
53	————	—	Not used.
54	————	—	Not used.
55	————	O	Not used.
56	MNT2 (XBUSY)	I	In the state of executive command from the CXD2662R
57	VSS2	—	Ground.
58	MNT1 (SHCK)	I	Track jump signal input from the CXD2662R
59	VCC2	—	Power supply. (+3.3V)
60	EEP-WP	O	EEP-ROM write protect signal output. L: write possibility
61	SDA (EEP)	I/O	Data signal input/output pin with the EEPROM.
62	BCLK/ALE/CLKO	—	Not used.
63	$\overline{RD}/\overline{DW}$	O	Read signal output.
64	$\overline{BHE}/\overline{CASH}$	—	Not used.
65	$\overline{WR}/\overline{CASL}$	O	Write signal output.
66	SCL	O	Clock signal output to the EEPROM.
67	REFLECT	I	Disk reflection rate detection input from the reflect detection switch. H: Disk with low reflection rate
68	PROTECT	I	Recording-protection claw detection input from the protection detection switch. H: Protect
69	$\overline{CS0}$	O	Chip select signal output to the Flash ROM.
70	$\overline{CS1}$	O	Not used.
71	————	O	Not used.
72	A20	O	Address bus signal output to Flash ROM.
73	A19	O	Address bus signal output to Flash ROM.
74	VCC3	—	Power supply. (+3.3V)
75	A18	O	Address bus signal output to Flash ROM.
76	VSS3	—	Ground
77 to 85	A17 to A9	O	Address bus signal output to Flash ROM.
86 to 89	SEL 3 to 0	O	Not used.
90	WP	O	Write protect signal to the Flash ROM.
91	VCC4	—	Power supply. (+3.3V)
92	A8	O	Address bus signal output to Flash ROM.
93	VSS4	—	Ground.
94 to 100	A7 to A1	O	Address bus signal output to Flash ROM.
101	$\overline{LB}$	—	Not used.
102 to 113	D15 to D4	I/O	Data bus signal input/output to the Flash ROM.
114	CLIP-SEL	O	Not used.
115	IIC BUSY	O	IIC cable connect check. L: Active
116	DALOCK	O	LOCK signal input from D/A converter.
117	LINE-MUTE	O	Not used.
118	ADP DOWN	O	Reset signal output to the A/D converter.
119 to 122	D3 to D0	I/O	Data bus signal input/output to the Flash ROM.
123	SPDIF-CUT	—	Jog dial pulse input from the rotary encoder.
124	OPT SEL	O	Optical select signal output.
125 to 129	————	—	Not used.
130	VSS5	—	Ground.
131	————	O	Not used.
132	VCC5	—	Power supply. (+3.3V)
133	OP-LEVEL	I	Optical Pick-up voltage (current) detect signal input.
134 to 139	————	—	Not used.
140	AVSS	—	Ground. (Analog)
141	————	—	Not used.
142	VREF	—	Power supply. (+3.3V)
143	AVCC	—	Power supply. (+3.3V)
144	NC	I	Not used.



## • IC401 M30622MGA-A33FP MASTER CONTROL (MAIN BOARD)

Pin No.	Pin Name	I/O	Description
1	LED 2	O	LED control signal output
2	LED 3	O	LED control signal output
3	LED 4	O	LED control signal output
4	SIRCS	I	Remote control receiver data signal input
5	LCD DATA	O	LCD DATA signal output
6	LCD STB	O	LCD STB signal output
7	LCD SCK	O	LCD SCK signal output
8	N.C.	–	Connected to ground
9	N.C.	–	Connected to ground
10	XC-IN	I	Sub clock input
11	XC-OUT	O	Sub clock output
12	RESET	I	System reset input
13	X-OUT	O	Main system clock output
14	VSS	–	Ground
15	X-IN	I	Main system clock input
16	VCC	–	Power supply (+5V)
17	NMI	–	Not used (connected to Vcc)
18	RDS-INT	I	RDS interrupt signal input
19	SCOR	I	CD Q-data signal input
20	RDS-DATA	I	RDS data signal input
21	ST-MUTING	O	Tuner muting signal output
22	ST-CE	O	Tuner chip enable output
23	ST-DOUT	O	Tuner data signal output
24	BU PWM 3	O	BU PWM 3 signal output
25	ST-DIN	I	Tuner data signal input
26	BU PWM 2	O	BU PWM 2 signal output
27	ST-CLK	O	Tuner clock signal output
28	BU PWM 1	O	BU PWM 1 signal output
29	IIC-CLK	O	IIC SCL output
30	IIC-DATA	O	IIC SDA output
31	N.C.	–	Not used
32	SQ-DATA-IN	I	CD SQ data input
33	SQ-CLK	O	CD SQ clock output
34	XTSL	O	XTSL signal output for IC101
35	CD-DATA	O	CD data signal output
36	SENS	I	BD condition signal input
37	CD-CLK	O	CD clock signal output
38	CD-POWER	O	CD power control signal output (H=ON,L=OFF)
39	STB LED/CLK	O	Standby LED ON/OFF signal output/Test point (clock check)
40	DBFB ON/OFF	O	DBFB control signal output (L=ON,H=OFF)
41	LDON	O	LDON signal output for IC103
42	XLT	O	CD LAT signal output
43	XRST	O	CD reset signal output
44	LOAD-IN	O	Loading motor control signal output
45	LOAD-OUT	O	Loading motor control signal output
46	OPEN	I	Tray open detect signal input
47	CLOSE	I	Tray close detect signal input
48	T-SENS1	I	CD table detect signal input
49	T-SENS2	I	CD table detect signal input
50	T-SENS3	I	CD table detect signal input

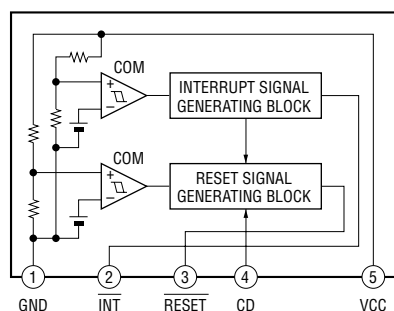
## HCD-CL5MD

Pin No.	Pin Name	I/O	Description
51	FAN CNT	O	Fan control signal output
52	DISC-SENS	I	Detection input signal from DISC SENSOR BOARD
53	B TRG	O	B deck trigger control signal output
54	AMS-IN	I	AMS signal input (L=ON,H=OFF)
55	CAPM-CNT1	O	Capstan motor REV/FWD/STOP control signal output
56	OPT SEL	O	Optical select signal output
57	B PLAY	I	B deck play detect signal input
58	TC-MUTING	O	Tape deck line muting signal output (H=ON,L=OFF)
59	R/PB/PAS	I	REC/PB/PAS select signal input (L=REC,Z=PB,H=PAS)
60	TC LID	I	TC lid detect signal input
61	REC-MUTING	O	REC MUTING ON/OFF signal output (L=ON,H=OFF)
62	VCC	–	Power supply (+5V)
63	SOFT-TEST	O	Test point (soft check out)
64	VSS	–	Ground
65	BIAS	O	BIAS ON/OFF signal output (H=ON,L=OFF)
66	MD/VIDEO	O	Not used
67	DA-MUTING	O	DA muting control signal output
68	ALC	O	ALC ON/OFF signal output (L=ON,H=OFF)
69	TC-RELAY	O	Tape deck relay ON/OFF signal output (H=ON,L=OFF)
70	HEAD PHONE DETECT	I	HEAD PHONE detect signal input
71	LINE-MUTING	O	LINE muting ON/OFF signal output (H=ON,L=OFF)
72	STK-POWER	O	Power amplifier ON/OFF signal output (H=ON,L=OFF)
73	DISPLAYKEY	I	Display key detect signal input
74	POWER KEY	I	Power key detect signal input
75	PC_POWER	I	PC power detect signal from PC LINK
76	MDM POWER	O	MD P-DOWN control signal output
77	BACK LIGHT	O	Back light LED control signal output
78	VOL B	I	Volume signal input from rotary encoder
79	VOL A	I	Volume signal input from rotary encoder
80	STBY-RELAY	O	Standby relay ON/OFF signal output
81	AMP-DATA	O	DATA signal output for sound processor
82	AMP-LAT	O	LAT signal output for sound processor
83	AMP-CLK	O	CLK signal output for sound processor
84	FRONT-RELAY	O	Front speaker relay ON/OFF signal output (H=ON,L=OFF)
85	N.C.	–	Not used
86	PROTECT	I	Speaker protect ON/OFF signal input (L=ON,H=OFF)
87	STEREO	I	STEREO detect signal input (L=ON,H=OFF)
88	TUNED	I	TUNED detect signal input (L=ON,H=OFF)
89	LED 1	O	LED control signal output
90	B-SHUT	I	B deck reel pulse signal input
91	B HALF/REC	I	B deck half detect signal input
92	MODEL -IN	I	MODEL input
93	SPEC-IN	I	Version select input
94	KEY2	I	Key input signal from function key
95	KEY1	I	Key input signal from function key
96	AVSS	–	Analog ground
97	KEY0	I	Key input signal from function key
98	VREF	O	Analog reference voltage
99	AVCC	–	Analog power supply
100	AC-CUT	I	AC_CUT ON/OFF check (L=ON,H=OFF)

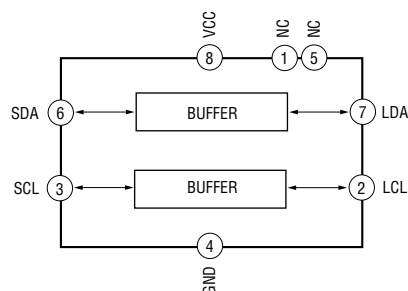
## 7-27. IC BLOCK DIAGRAMS

– MAIN BOARD –

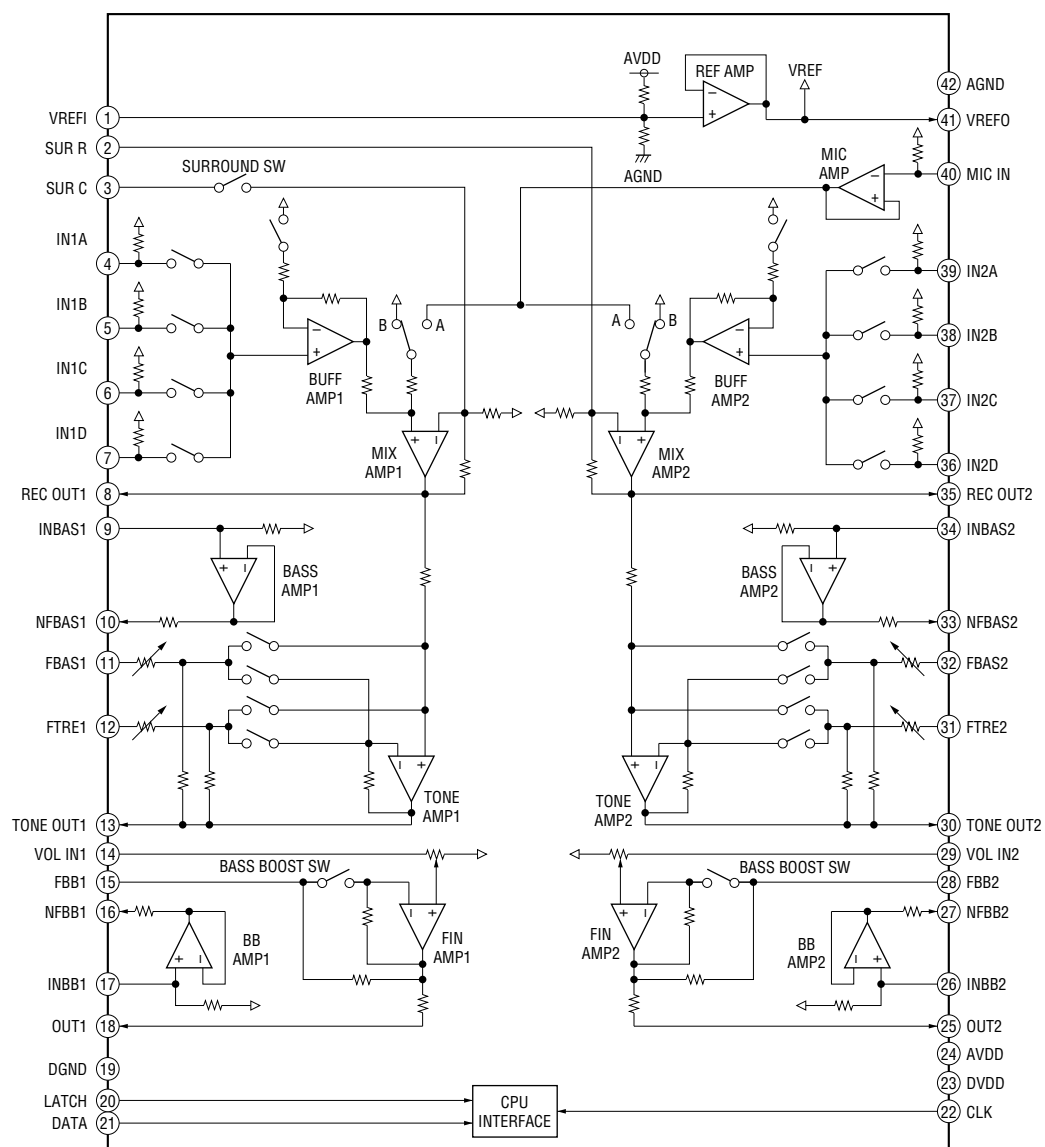
IC502 M62016L



IC552 P82B715TD.118



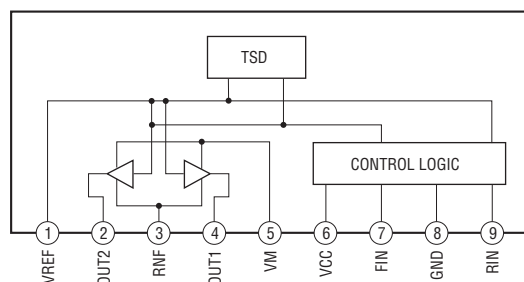
IC201 M62428AFP600C



# HCD-CL5MD

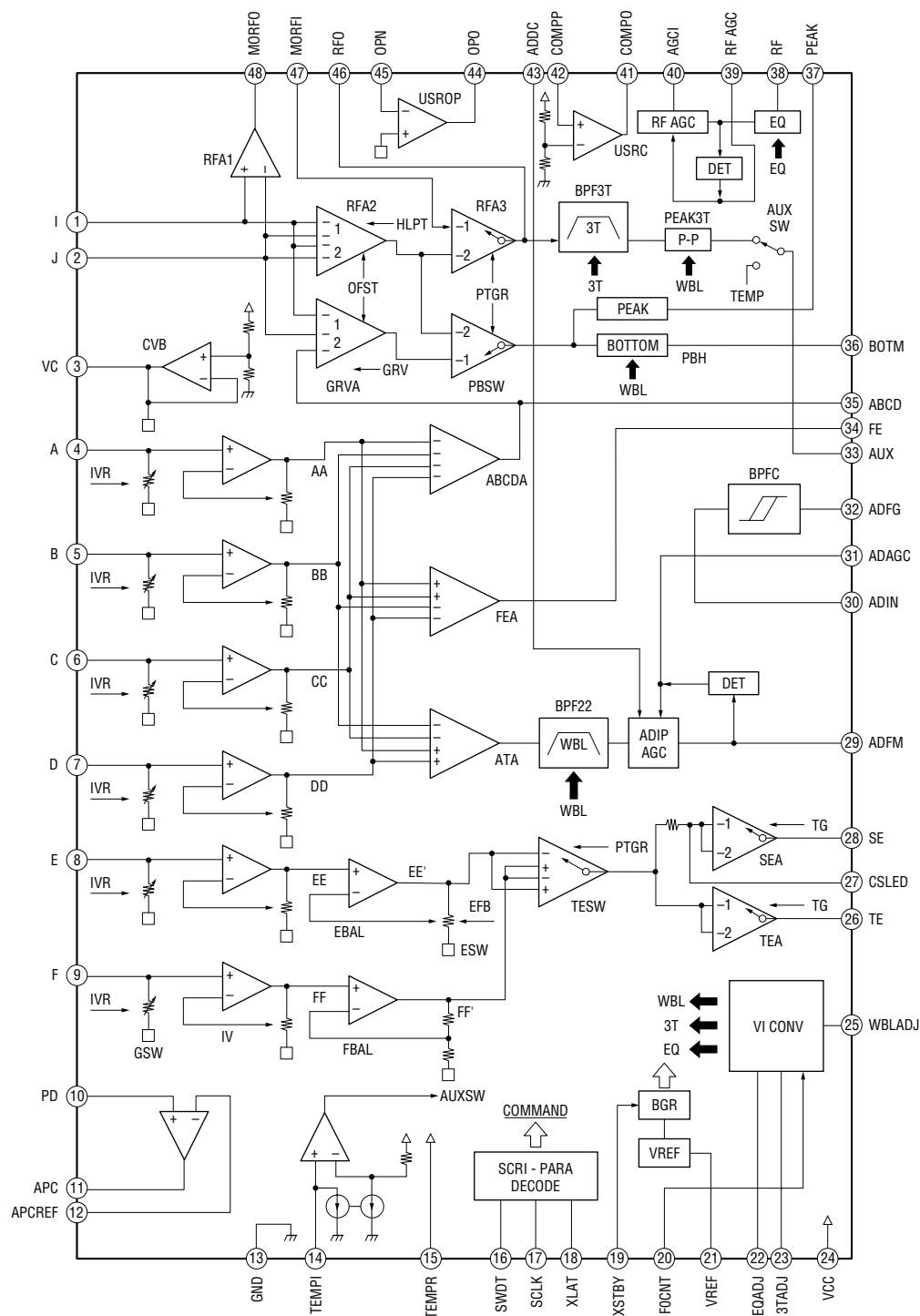
## – DRIVER BOARD –

IC701 BA6956AN

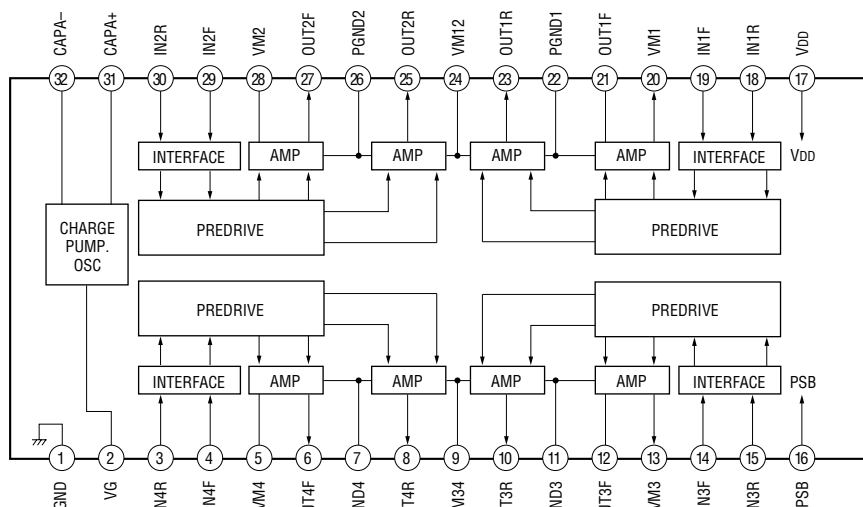


## – BD (MD) BOARD –

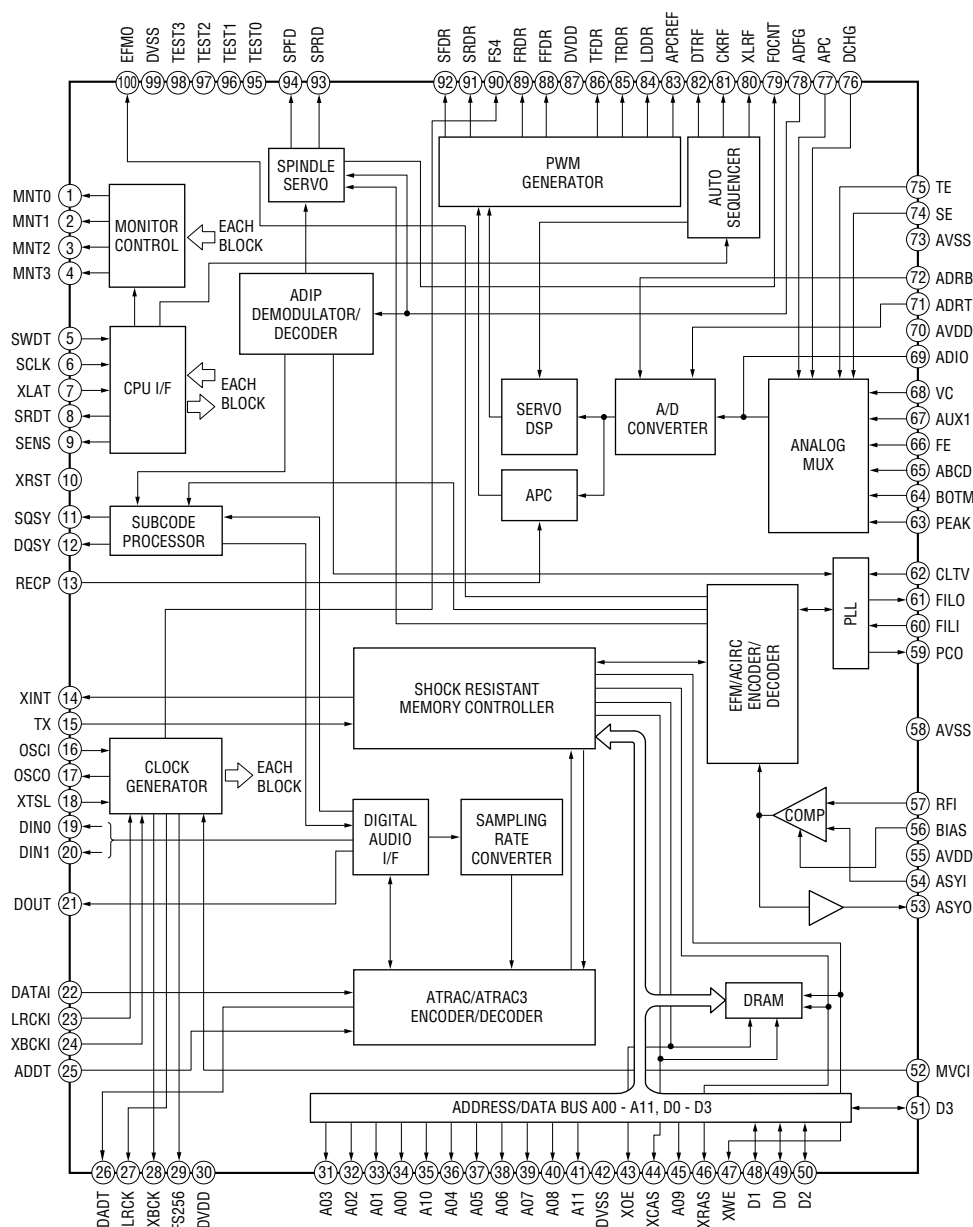
IC101 CXA2523AR



## IC141 BH6511FS-E2



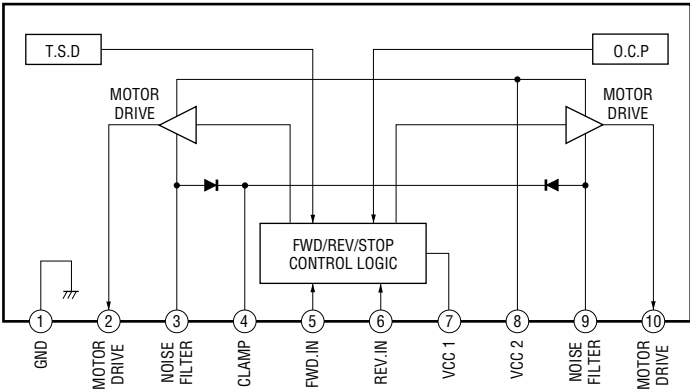
## IC151 CXD2662R



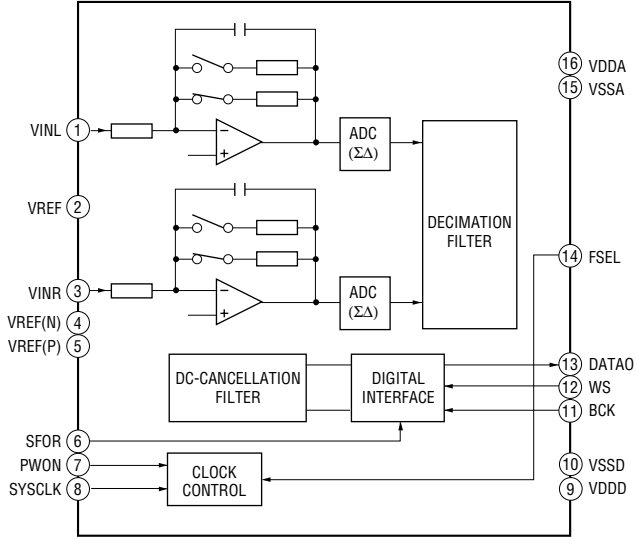
HCD-CL5MD

– DIGITAL BOARD –

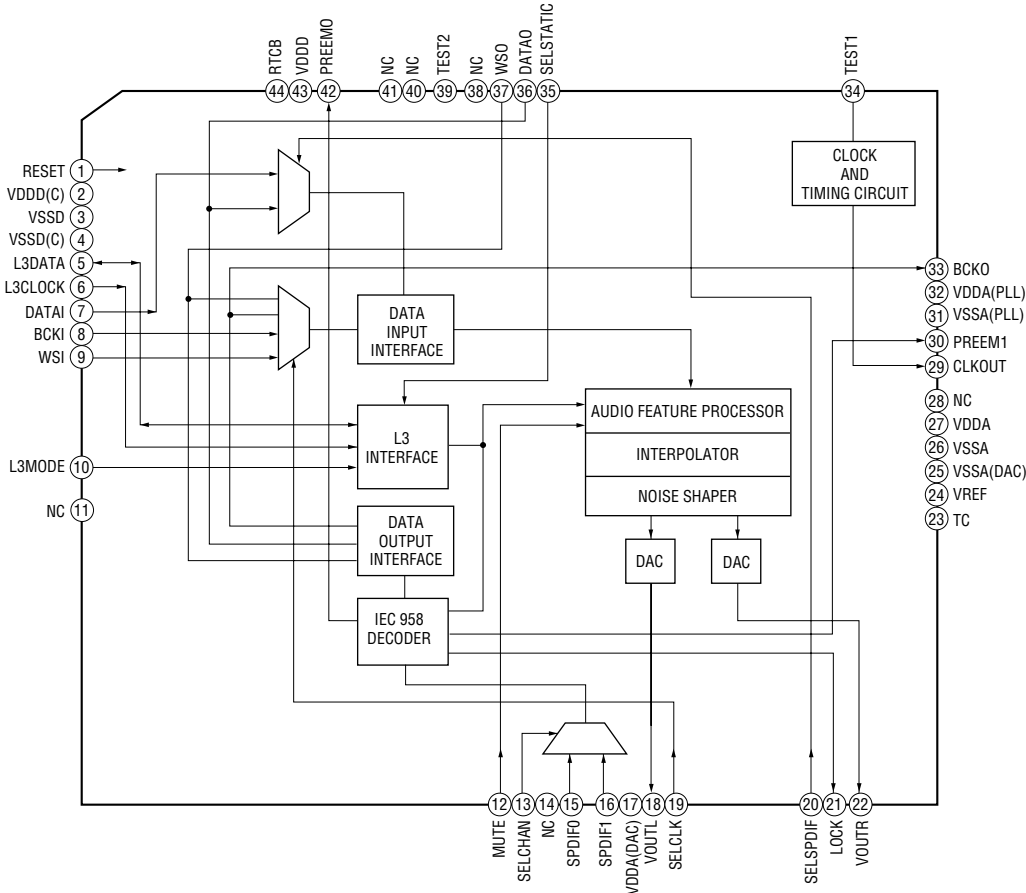
IC1004 LB1641



IC1005 UDA1360TS

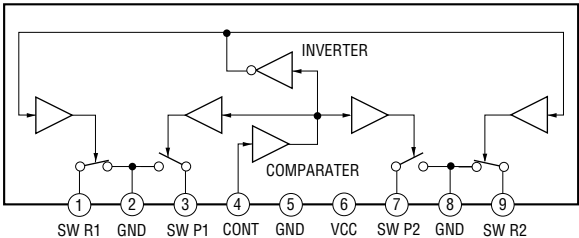


IC1006 UDA1350AH



– TC BOARD –

IC302 uPC1330HA





## SECTION 8 EXPLODED VIEWS

### NOTE:

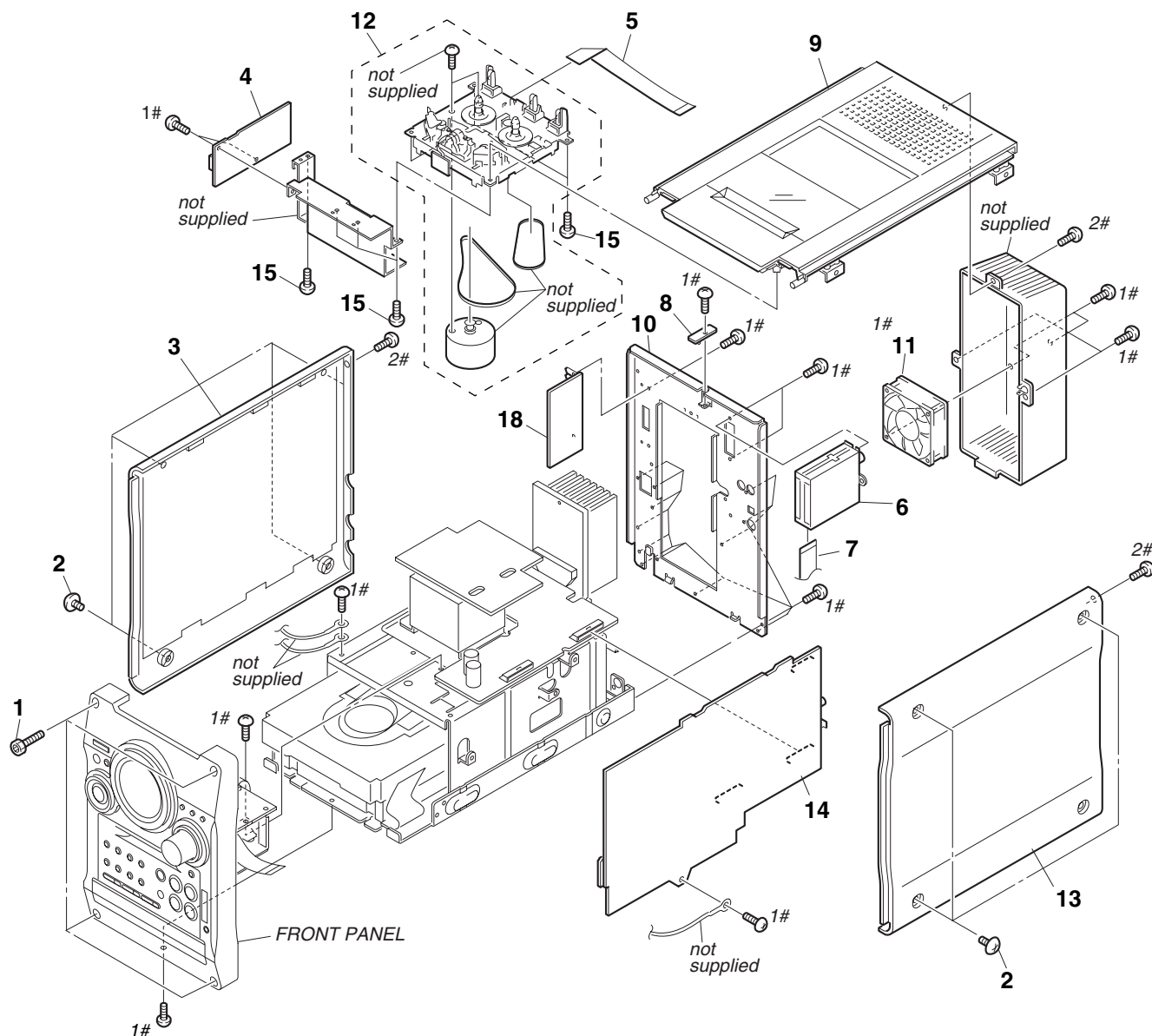
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation  
AUS : Australian model  
HK : Hong Kong model

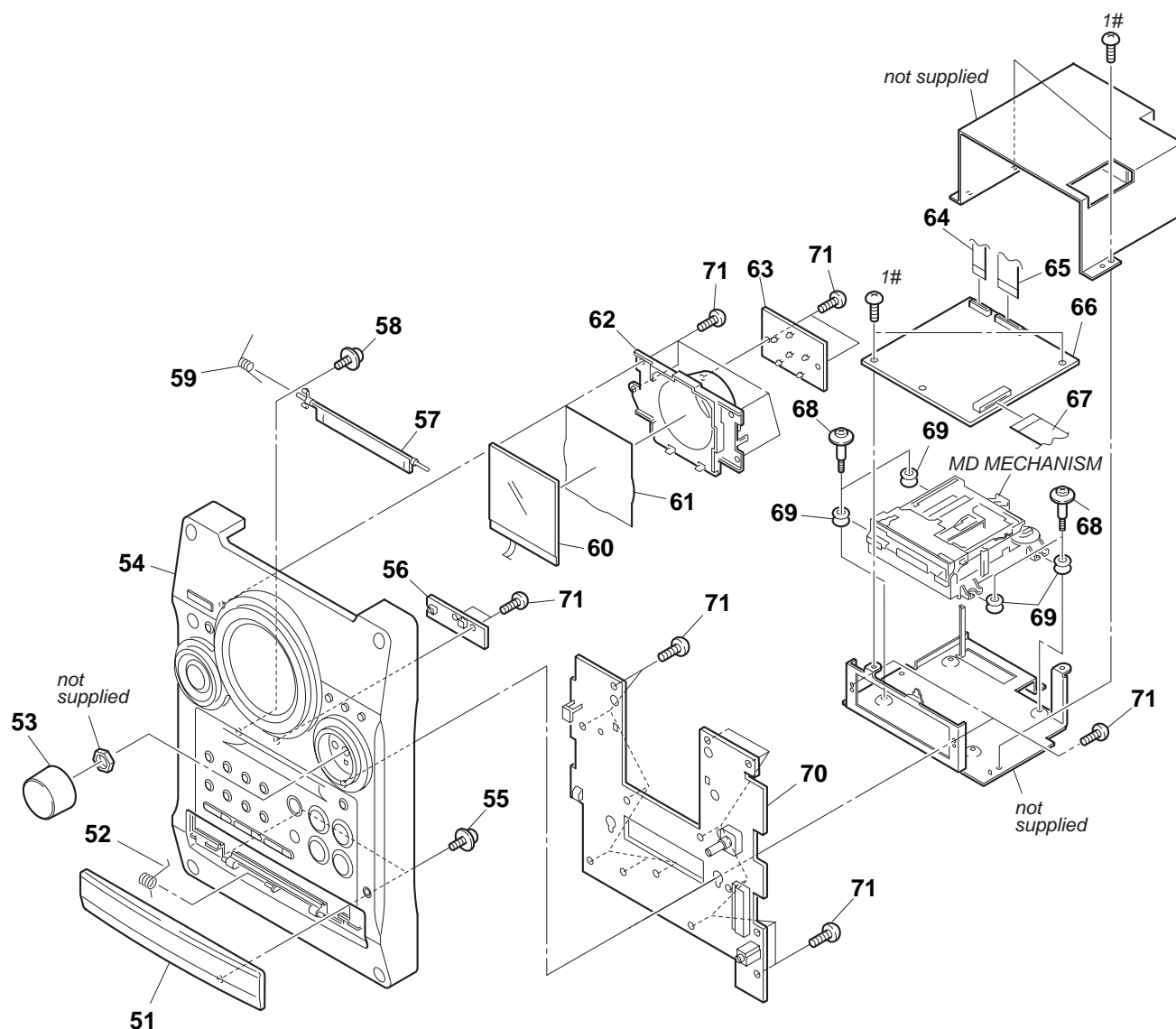
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

### 8-1. SIDE PANEL, BACK PANEL SECTION



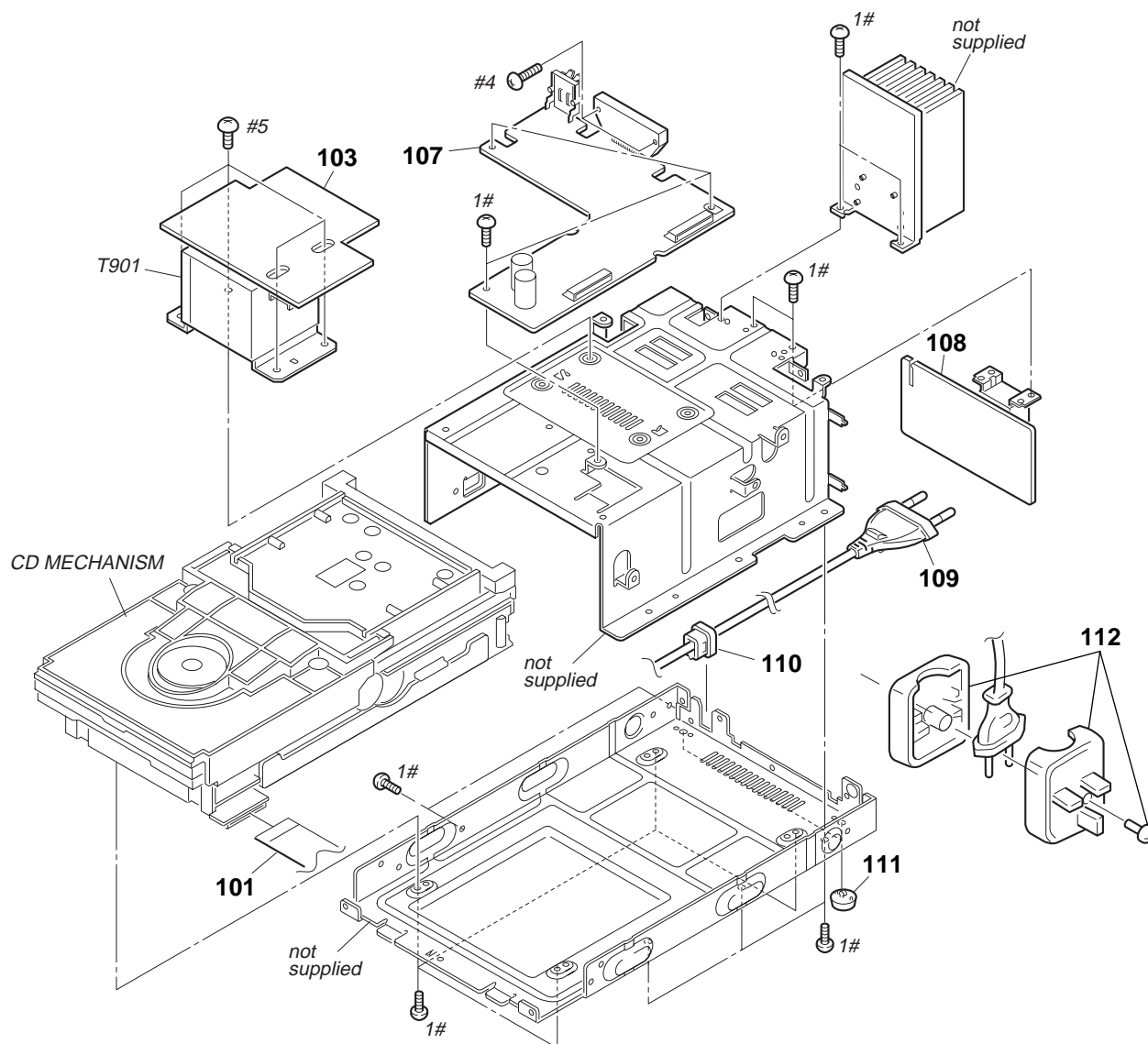
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	4-232-226-01	SCREW, HEXAGON SOCKET TAPPING		10	4-231-677-41	PANEL, BACK (AEP,UK)	
2	3-363-099-11	SCREW (CASE 3 TP2)		10	4-231-677-51	PANEL, BACK (AUS)	
3	4-231-649-01	PANEL (L), SIDE		10	4-231-677-61	PANEL, BACK (HK)	
4	A-4476-076-A	TC BOARD, COMPLETE		11	1-763-072-11	FAN, DC	
5	1-769-910-11	WIRE (FLAT TYPE) (9 CORE)		12	1-796-351-11	MECHANISM, SINGLE CASSETTE (CMAL1Z215B)	
6	1-693-529-11	TUNER		13	4-231-650-01	PANEL (R), SIDE	
7	1-769-944-11	WIRE (FLAT TYPE) (11 CORE) (AUS,HK)		14	A-4475-470-A	MAIN BOARD, COMPLETE (AEP,UK)	
7	1-773-008-11	WIRE (FLAT TYPE) (15 CORE) (AEP,UK)		14	A-4475-488-A	MAIN BOARD, COMPLETE (AUS,HK)	
8	1-680-270-11	THERMAL BOARD		15	4-951-620-01	SCREW (2.6X8), +BVTP	
9	X-4953-318-1	PANEL ASSY, TOP		18	1-680-258-11	VOL SEL BOARD (HK)	

## 8-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	4-231-633-01	LID (CD)		61	4-231-637-01	SHEET, DIFFUSION	
52	4-231-670-01	SPRING (CD)		62	4-231-636-01	HOLDER, LCD	
53	4-231-646-01	KNOB, VOLUME		63	1-679-981-11	BACK LIGHT BOARD	
54	X-4953-323-1	PANEL ASSY, FRONT (AEP,UK)		64	1-775-152-11	WIRE (FLAT TYPE) (17 CORE)	
54	X-4953-350-1	PANEL ASSY, FRONT (AUS,HK)		65	1-775-237-11	WIRE (FLAT TYPE) (27 CORE)	
55	4-933-134-41	SCREW (+PTPWH 2.6X5)		66	A-4476-086-A	DIGITAL BOARD, COMPLETE	
56	1-679-982-11	RING SW BOARD		67	1-773-207-11	WIRE (FLAT TYPE) (25 CORE)	
57	4-228-335-01	LID (MD)		68	4-228-643-11	SCREW (+BVTTWH M3), STEP	
58	4-231-113-01	SCREW (1.7X3), BTN		69	4-228-689-01	INSULATOR\	
59	4-228-323-01	SPRING (MD)		70	A-4475-468-A	PANEL BOARD, COMPLETE	
60	1-804-260-11	DISPLAY PANEL, LIQUID CRYSTAL		71	4-951-620-01	SCREW (2.6X8), +BVTP	

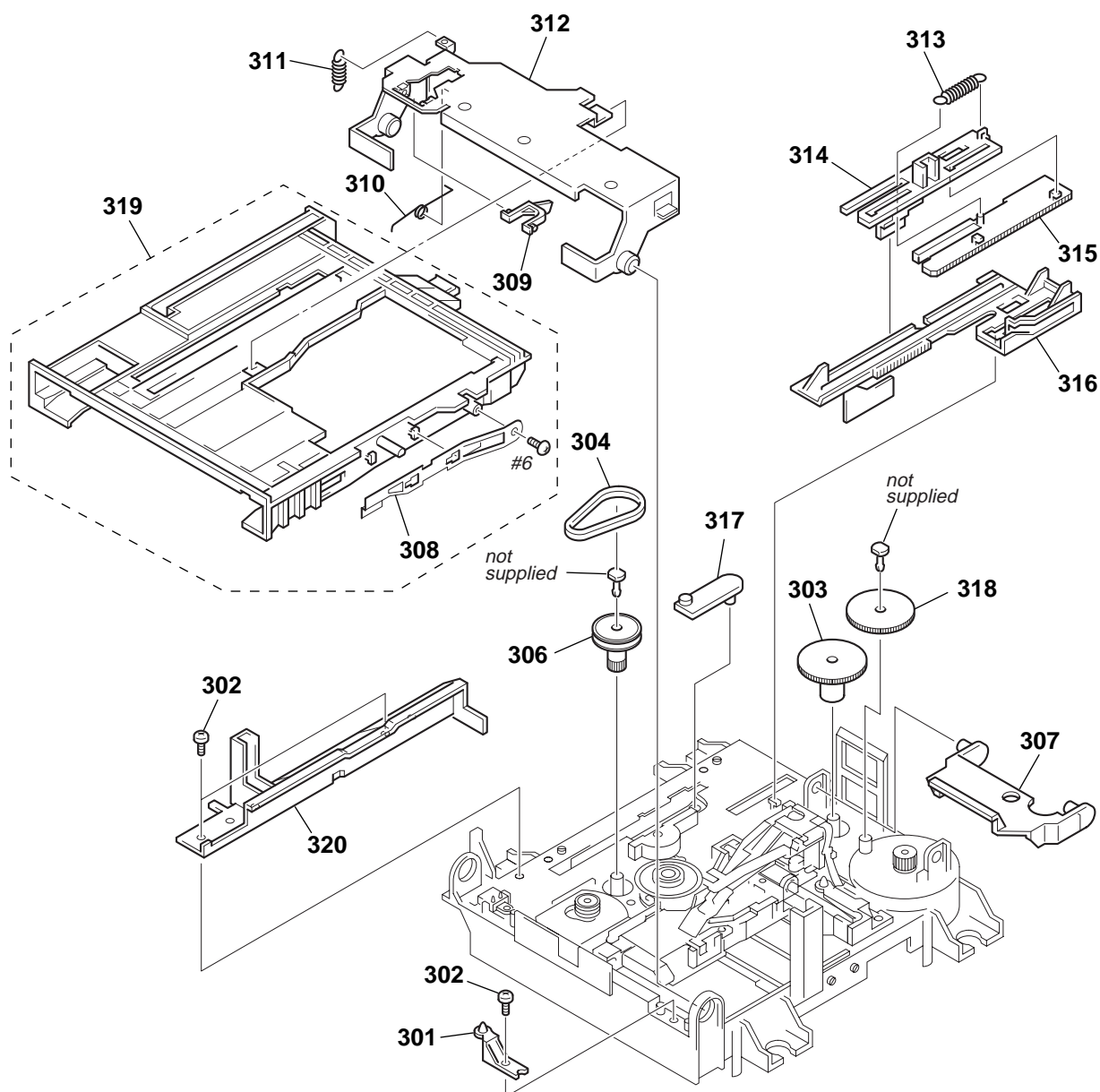
## 8-3. CHASSIS SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	1-773-214-11	WIRE (FLAT TYPE) (25 CORE)		△ 109	1-790-226-11	CORD, POWER (UK)	
103	1-680-256-11	TRANS BOARD		* 110	3-703-244-00	BUSHING (2104), CORD	
107	A-4475-465-A	AMP BOARD, COMPLETE (AEP,UK)		111	4-965-822-01	FOOT	
107	A-4475-485-A	AMP BOARD, COMPLETE (AUS,HK)		△ 112	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
108	1-680-257-11	SUB POWER BOARD		△ T901	1-435-833-11	TRANSFORMER, POWER (AEP,UK)	
△ 109	1-575-651-11	CORD, POWER (AEP,HK)		△ T901	1-435-834-11	TRANSFORMER, POWER (AUS,HK)	
△ 109	1-783-203-11	CORD, POWER (AUS)					

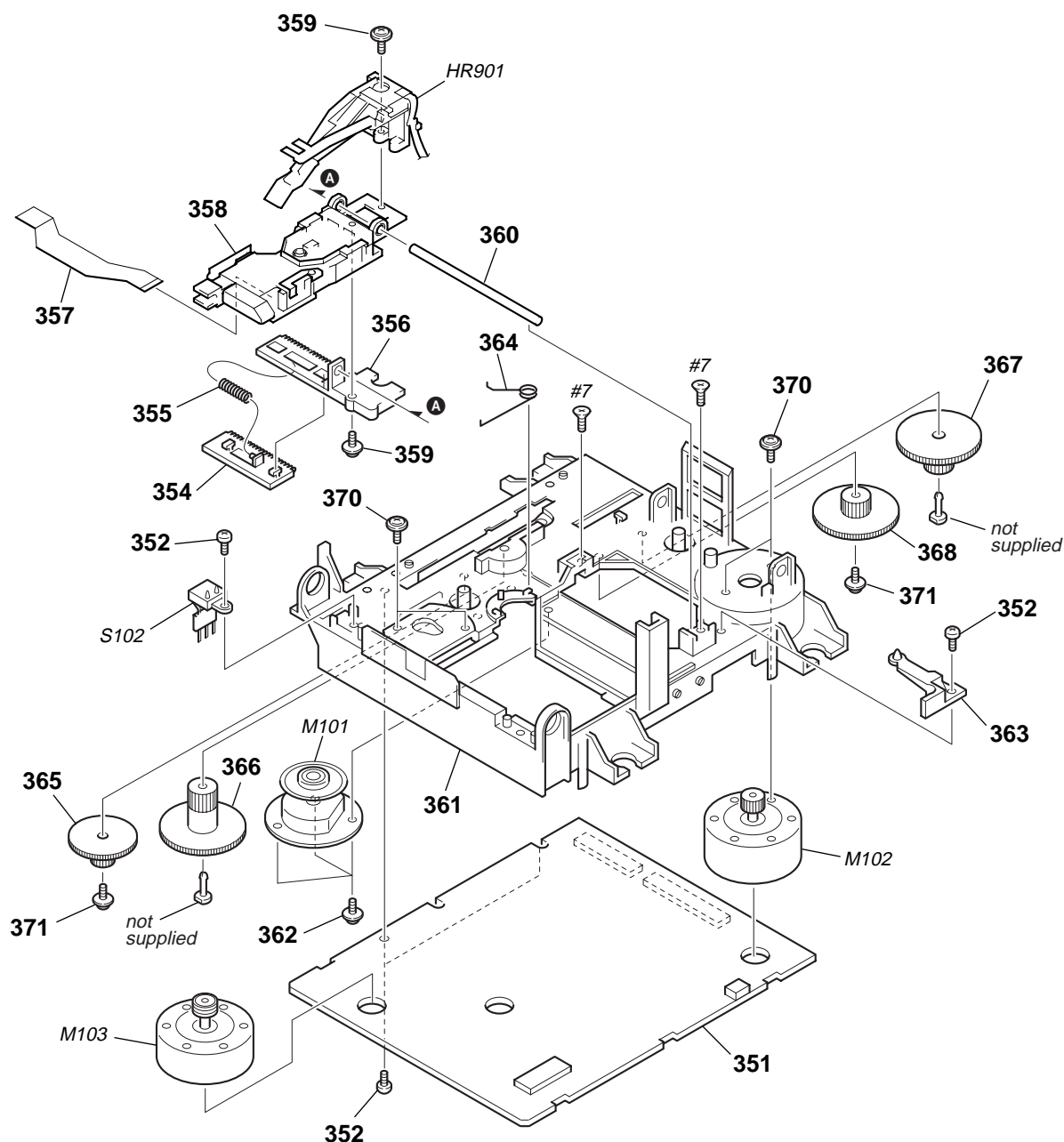
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## 8-4. MD MECHANISM DECK SECTION-1



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 301	4-996-267-01	BASE (BU-D)		312	4-227-019-02	PLATE (HOLDER), RETAINER	
302	4-231-319-01	SCREW (2X6) CZN, +B (P) TRI		313	4-227-013-01	SPRING (EJ), TENSION	
303	4-227-007-01	GEAR (SB)		314	4-226-996-01	LIMITTER (EJ)	
304	4-227-025-01	BELT (LOADING)		315	4-226-995-01	SLIDER (EJ)	
306	4-227-002-01	GEAR, PULLEY		316	4-226-997-04	SLIDER	
307	4-226-999-01	LEVER (HEAD)		317	4-226-998-01	LEVER (CHG)	
308	X-4952-665-1	SPRING (SHT) ASSY, LEAF		318	4-227-006-01	GEAR (SA)	
309	4-228-923-01	LOCK (HOLDER)		319	A-4735-075-A	HOLDER ASSY	
310	4-229-533-01	SPRING (STOPPER), TORSION		320	4-226-994-01	GUIDE (L)	
311	4-227-012-01	SPRING (HOLDER), TENSION					

## 8-5. MD MECHANISM DECK SECTION-2

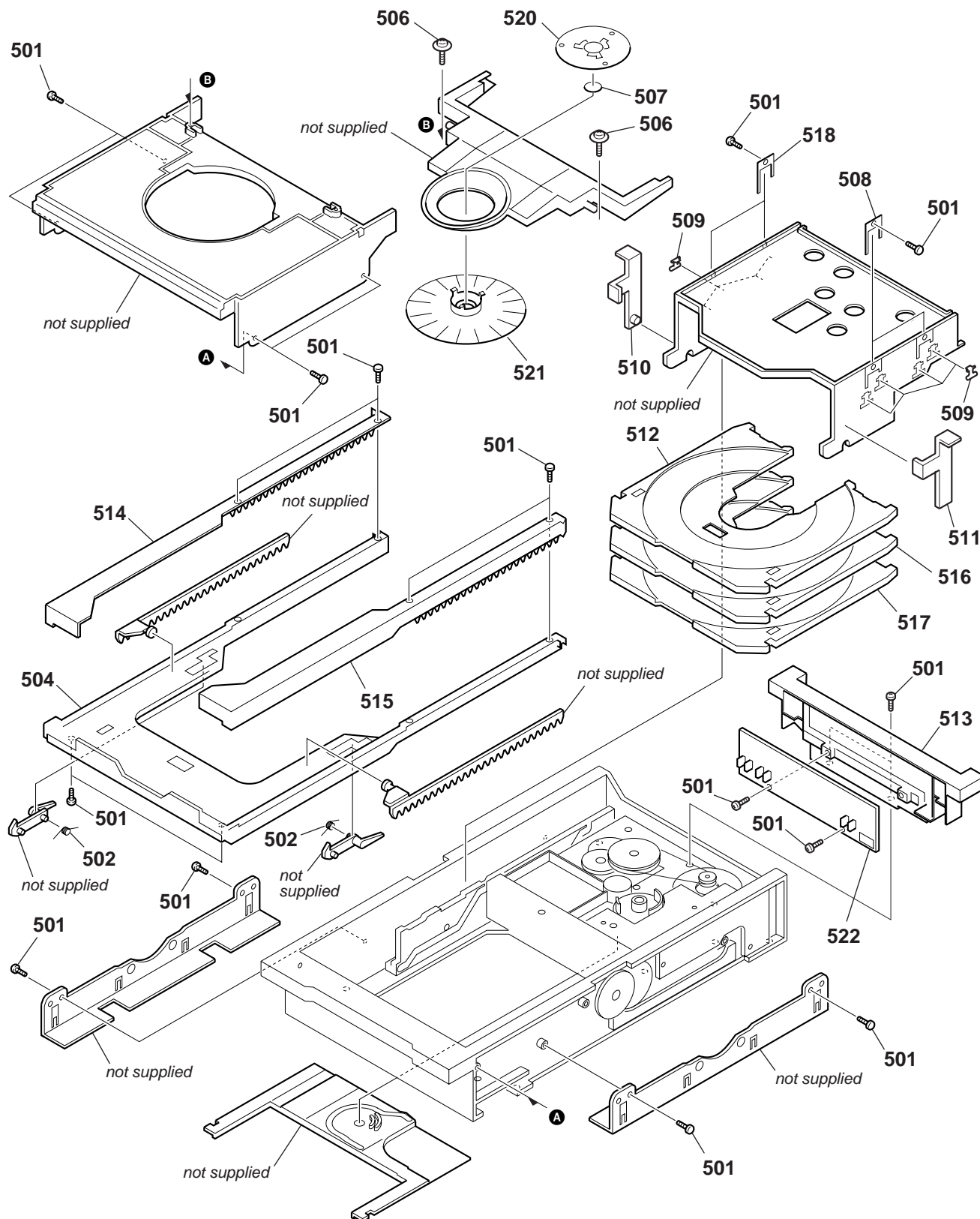


Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
351	A-4725-473-A	BD(MD)BOARD, COMPLETE		364	4-227-023-01	SPRING (SPINDLE), TORSION	
352	4-231-319-01	SCREW (2X6) CZN, +B (P) TRI		365	4-227-004-01	GEAR (LC)	
354	4-226-993-01	RACK		366	4-227-005-01	GEAR (LD)	
355	4-227-014-01	SPRING (RACK), COMPRESSION		367	4-227-008-01	GEAR (SC)	
356	4-226-992-01	BASE, SL		368	4-227-009-01	GEAR (SD)	
357	1-678-514-11	PWB, FLEXIBLE		370	4-232-270-01	SCREW (1.7X3.5), +PWH	
Δ 358	A-4672-541-A	MD OPTICAL PICK-UP(KMS-260B/K1NP)		371	3-372-761-01	SCREW (M1.7), TAPPING	
359	4-988-560-01	SCREW (+P 1.7X6)		HR901	1-500-670-11	HEAD, OVER LIGHT	
360	4-996-265-01	SHAFT, MAIN		S102	1-771-957-11	SWITCH, PUSH (2 KEY)	
361	4-226-989-01	CHASSIS		M101	A-4672-898-A	MOTOR ASSY, SPINDLE	
362	3-372-761-01	SCREW (M1.7), TAPPING		M102	A-4735-076-A	MOTOR ASSY, SLED	
363	4-226-990-01	BASE (BU-A)		M103	A-4735-074-A	MOTOR ASSY, LOADING	

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

# HCD-CL5MD

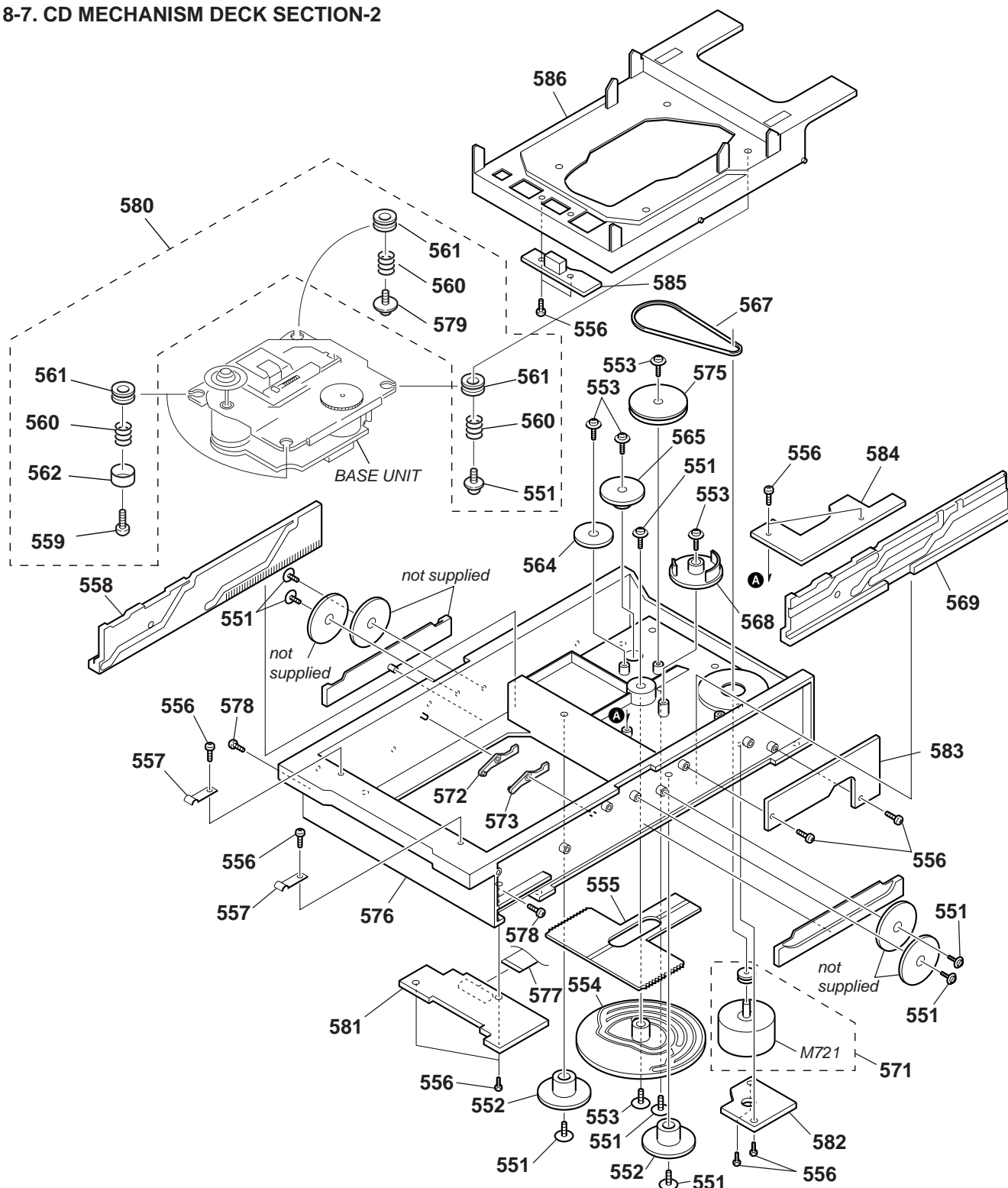
## 8-6. CD MECHANISM DECK SECTION-1



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
501	4-218-253-01	SCREW (M2.6), +BTTP		513	4-229-001-01	HOLDER (SENSOR)	
502	4-228-995-01	SPRING (L), TORSION		514	4-228-978-01	COVER (TRAY.R)	
504	4-228-972-01	TRAY (MAIN)		515	4-228-975-01	COVER (TRAY.L)	
506	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		516	4-228-970-11	TRAY (SUB)	
507	4-228-414-01	BRACKET (YOKE)		517	4-228-970-21	TRAY (SUB)	
508	4-228-980-01	SPRING (STOCKER), LEAF		518	4-234-423-01	SPRING (STOCKER L), LEAF	
509	4-228-981-01	STOPPER (TRAY)		520	4-231-971-01	PULLEY (30B), CHUCKING	
510	4-228-963-01	SLIDER (STOCKER.L)		521	X-4953-307-1	PULLEY (A) ASSY, CHUCKING	
511	4-228-964-01	SLIDER (STOCKER.R)		522	1-678-457-11	TRAY SENSOR BOARD	
512	4-228-970-01	TRAY (SUB)					



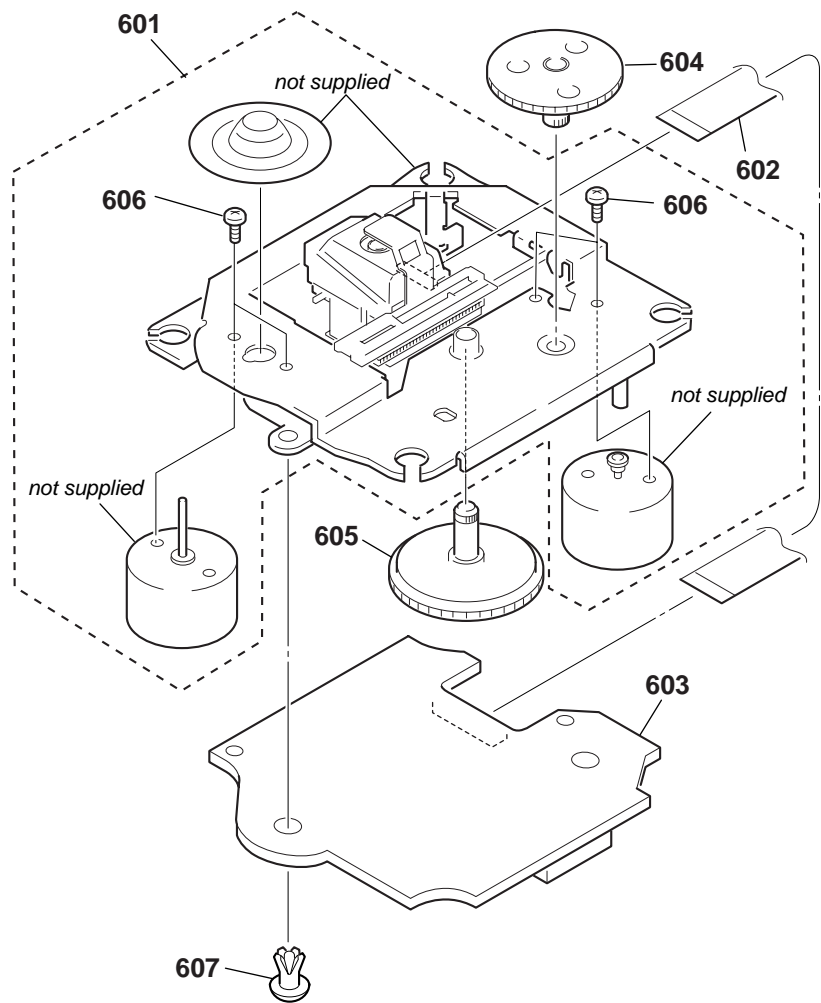
## 8-7. CD MECHANISM DECK SECTION-2



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
551	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		571	X-4952-971-2	MOTOR ASSY	
552	4-229-002-02	GEAR (SLIDER)		572	4-228-999-02	LEVER (MAIN.L)	
553	4-218-254-21	SCREW (M2.6), +PTPWH		573	4-229-000-02	LEVER (MAIN.R)	
554	4-228-971-01	CAM		575	4-229-003-01	PULLEY	
555	4-228-974-02	RACK (CENTER)		576	4-228-988-01	CHASSIS	
556	4-218-253-61	SCREW (M2.6), +BTTP		577	1-757-574-11	WIRE (FLAT TYPE) (22 CORE)	
557	4-228-969-02	SPRING (TABLE), LEAF		578	4-218-253-71	SCREW (M2.6), +BTTP	
558	4-228-977-01	SLIDER (BU.L)		579	4-227-899-01	SCREW (DIA. 12), FLOATING	
559	4-951-620-01	SCREW (2.6X8), +BVTP		580	A-4412-659-A	CDM HIGH SPEED ASSY	
560	4-227-045-11	SPRING (INSULATOR), COIL		581	1-680-269-11	RELAY BOARD	
561	4-231-451-01	INSULATOR (BU-30)		582	1-678-461-11	MOTOR BOARD	
562	4-231-151-01	STOPPER (BU)		583	1-678-460-11	DRIVER BOARD	
564	4-228-985-01	GEAR (PULLEY)		584	1-678-462-11	IN OUT SW BOARD	
565	4-228-997-02	GEAR (CAM)		585	1-678-463-11	DISK SENSOR BOARD	
567	4-228-968-01	BELT		586	4-231-517-03	HOLDER (BU30)	
568	4-228-998-01	GEAR (DETECTION)		M721	1-541-632-12	MOTOR, DC	
569	4-228-976-01	SLIDER (BU.R)					



8-8. BASE UNIT SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
△ 601	A-4735-059-A	CD OPTICAL PICK-UP (A-MAX.3)		605	4-233-832-01	GEAR (LB)	
602	1-782-817-11	WIRE (FLAT TYPE) (16 CORE)		606	7-627-853-28	SCREW, PRECISION +P 2X3 TYPE3	
603	A-4725-528-A	BD(CD)BOARD, COMPLETE		607	3-531-576-11	RIVET	
604	4-233-831-01	GEAR (LA)					

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## SECTION 9 ELECTRICAL PARTS LIST

**AMP****NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:  
uF:  $\mu$ F

- RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- COILS  
uH:  $\mu$ H
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...,  $\mu$ PA...,  
uPB...,  $\mu$ PB..., uPC...,  $\mu$ PC...,  
uPD...,  $\mu$ PD...

- Abbreviation  
AUS : Australian model  
HK : Hong Kong model

When indicating parts by reference number, please include the board name.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
	A-4475-465-A	AMP BOARD, COMPLETE (AEP,UK)	*****			C954	1-136-165-00	FILM	0.1uF	5.00%	50V
						C957	1-136-153-00	FILM	0.01uF	5%	50V
	A-4475-485-A	AMP BOARD, COMPLETE (AUS,HK)	*****			C958	1-136-153-00	FILM	0.01uF	5%	50V
						C971	1-126-965-11	ELECT	22uF	20.00%	50V
						C972	1-126-965-11	ELECT	22uF	20.00%	50V
		< CAPACITOR >									
C801	1-126-964-11	ELECT	10uF	20.00%	50V	C973	1-104-665-11	ELECT	100uF	20.00%	10V
C802	1-162-286-31	CERAMIC	220PF	10%	50V	C974	1-126-967-11	ELECT	47uF	20.00%	50V
C803	1-162-282-31	CERAMIC	100PF	10%	50V	C975	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
C804	1-126-965-11	ELECT	22uF	20.00%	50V						(AEP,UK)
C805	1-136-161-00	FILM	0.047uF	5.00%	50V	C991	1-126-963-11	ELECT	4.7uF	20.00%	50V
								< CONNECTOR >			
C806	1-136-161-00	FILM	0.047uF	5.00%	50V	CN801	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P			
C807	1-136-153-00	FILM	0.01uF	5%	50V	CN952	1-778-982-21	CONNECTOR, BOARD TO BOARD 13P			
								< DIODE >			
C808	1-136-153-00	FILM	0.01uF	5%	50V	D801	8-719-911-19	DIODE 1SS133T-72			
						D831	8-719-911-19	DIODE 1SS133T-72			
C809	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	D851	8-719-911-19	DIODE 1SS133T-72			
						D881	8-719-911-19	DIODE 1SS133T-72			
C810	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	D891	8-719-911-19	DIODE 1SS133T-72			
C811	1-107-713-11	ELECT	4.7uF	20.00%	50V	D953	8-719-024-99	DIODE 11ES2-NTA2B			
C832	1-104-665-11	ELECT	100uF	20.00%	10V	D954	8-719-024-99	DIODE 11ES2-NTA2B			
C833	1-126-961-11	ELECT	2.2uF	20.00%	50V	D955	8-719-024-99	DIODE 11ES2-NTA2B			
C834	1-104-665-11	ELECT	100uF	20.00%	10V	D956	8-719-024-99	DIODE 11ES2-NTA2B			
C851	1-126-964-11	ELECT	10uF	20.00%	50V	D957	8-719-024-99	DIODE 11ES2-NTA2B			
C852	1-162-286-31	CERAMIC	220PF	10%	50V	D958	8-719-024-99	DIODE 11ES2-NTA2B			
C853	1-162-282-31	CERAMIC	100PF	10%	50V	D959	8-719-024-99	DIODE 11ES2-NTA2B			
C854	1-126-965-11	ELECT	22uF	20.00%	50V	D960	8-719-024-99	DIODE 11ES2-NTA2B			
C855	1-136-161-00	FILM	0.047uF	5.00%	50V	D961	8-719-911-19	DIODE 1SS133T-72			
C856	1-136-161-00	FILM	0.047uF	5.00%	50V	D962	8-719-911-19	DIODE 1SS133T-72			
C857	1-136-153-00	FILM	0.01uF	5%	50V						
C858	1-136-153-00	FILM	0.01uF	5%	50V	D971	8-719-911-19	DIODE 1SS133T-72			
						D991	8-719-911-19	DIODE 1SS133T-72			
C859	1-162-306-11	CERAMIC	0.01uF	30.00%	16V			< EARTH >			
C861	1-107-713-11	ELECT	4.7uF	20.00%	50V	* EP951	1-537-738-21	TERMINAL, EARTH			
C891	1-126-959-11	ELECT	0.47uF	20.00%	50V			< IC >			
C951	1-137-844-11	ELECT	2200uF	20%	42V						
C951	1-135-832-11	ELECT	2200uF	20%	50V	IC801	8-749-016-93	IC STK402-070S			
C952	1-137-844-11	ELECT	2200uF	20%	42V			< COIL >			
C952	1-135-832-11	ELECT	2200uF	20%	50V	L801	1-420-872-00	COIL, AIR-CORE (AEP,UK)			
						L851	1-420-872-00	COIL, AIR-CORE (AEP,UK)			
C953	1-136-165-00	FILM	0.1uF	5.00%	50V						

# HCD-CL5MD

AMP

BACK LIGHT

Ref. No.	Part No.	Description	Remarks			
< TRANSISTOR >						
Q801	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q831	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q832	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q833	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q834	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q835	8-729-119-76	TRANSISTOR	2SA1175TP-HFE			
Q836	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q837	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q841	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q842	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q851	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q881	8-729-119-76	TRANSISTOR	2SA1175TP-HFE			
Q882	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q971	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
Q972	8-729-140-82	TRANSISTOR	2SA988TP-PAFAEA			
Q973	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
< RESISTOR >						
R801	1-249-417-11	CARBON	1K	5%	1/4W	F
R802	1-249-437-11	CARBON	47K	5%	1/4W	
R803	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R804	1-249-437-11	CARBON	47K	5%	1/4W	
△ R805	1-233-352-11	ENCAPSULATED COMPONENT				
R806	1-260-076-11	CARBON	10	5%	1/2W	
R807	1-260-076-11	CARBON	10	5%	1/2W	
R808	1-260-076-11	CARBON	10	5%	1/2W	(AEP,UK)
R810	1-249-417-11	CARBON	1K	5%	1/4W	F
R811	1-249-431-11	CARBON	15K	5%	1/4W	
R812	1-249-441-11	CARBON	100K	5%	1/4W	
R813	1-249-437-11	CARBON	47K	5%	1/4W	
R814	1-249-438-11	CARBON	56K	5%	1/4W	
R815	1-249-433-11	CARBON	22K	5%	1/4W	
R816	1-215-889-00	METAL OXIDE	330	5%	2W	
R833	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R834	1-249-435-11	CARBON	33K	5%	1/4W	
R835	1-249-433-11	CARBON	22K	5%	1/4W	
R836	1-249-429-11	CARBON	10K	5%	1/4W	
R837	1-249-429-11	CARBON	10K	5%	1/4W	
R839	1-249-441-11	CARBON	100K	5%	1/4W	
R841	1-249-441-11	CARBON	100K	5%	1/4W	
R842	1-249-441-11	CARBON	100K	5%	1/4W	
R843	1-249-441-11	CARBON	100K	5%	1/4W	
R851	1-249-417-11	CARBON	1K	5%	1/4W	F
R852	1-249-437-11	CARBON	47K	5%	1/4W	
R853	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R854	1-249-437-11	CARBON	47K	5%	1/4W	
△ R855	1-233-352-11	ENCAPSULATED COMPONENT				
R856	1-260-076-11	CARBON	10	5%	1/2W	
R857	1-260-076-11	CARBON	10	5%	1/2W	(AEP,UK)
R858	1-260-076-11	CARBON	10	5%	1/2W	(AEP,UK)
R860	1-249-417-11	CARBON	1K	5%	1/4W	F
R861	1-249-431-11	CARBON	15K	5%	1/4W	
R862	1-249-441-11	CARBON	100K	5%	1/4W	

Ref. No.	Part No.	Description	Remarks			
R863	1-249-437-11	CARBON	47K	5%	1/4W	
R864	1-249-437-11	CARBON	47K	5%	1/4W	
R865	1-249-433-11	CARBON	22K	5%	1/4W	
R866	1-215-889-00	METAL OXIDE	330	5%	2W	
△ R881	1-215-890-11	METAL OXIDE	470	5%	2W	
R882	1-249-429-11	CARBON	10K	5%	1/4W	
R883	1-249-429-11	CARBON	10K	5%	1/4W	
R884	1-249-429-11	CARBON	10K	5%	1/4W	
R885	1-249-441-11	CARBON	100K	5%	1/4W	
R891	1-249-429-11	CARBON	10K	5%	1/4W	
R892	1-249-441-11	CARBON	100K	5%	1/4W	
R893	1-247-903-00	CARBON	1M	5%	1/4W	
R898	1-249-441-11	CARBON	100K	5%	1/4W	
R899	1-249-429-11	CARBON	10K	5%	1/4W	
R951	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R952	1-249-425-11	CARBON	4.7K	5%	1/4W	F
△ R971	1-212-881-11	FUSIBLE	100	5%	1/4W	
△ R972	1-212-881-11	FUSIBLE	100	5%	1/4W	
R973	1-249-435-11	CARBON	33K	5%	1/4W	
R974	1-249-433-11	CARBON	22K	5%	1/4W	
R975	1-249-437-11	CARBON	47K	5%	1/4W	
R976	1-249-441-11	CARBON	100K	5%	1/4W	
R977	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R978	1-249-433-11	CARBON	22K	5%	1/4W	
R979	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R980	1-249-429-11	CARBON	10K	5%	1/4W	
R981	1-249-429-11	CARBON	10K	5%	1/4W	
△ R982	1-202-972-61	FUSIBLE	1	5%	1/4W	
< RELAY >						
RY801	1-515-920-11	RELAY (24V)				
< TERMINAL >						
TM801	1-694-677-11	TERMINAL BOARD (4P) (SPEAKER)				
*****						
	1-679-981-11	BACK LIGHT BOARD				
*****						
< CAPACITOR >						
C709	1-126-935-11	ELECT	470uF	20.00%	10V	
< CONNECTOR >						
CN771	1-506-481-11	PIN, CONNECTOR 2P				
< DIODE >						
D771	8-719-075-50	DIODE	SELS6B14C-TP6 (BACK LIGHT)			
D772	8-719-075-50	DIODE	SELS6B14C-TP6 (BACK LIGHT)			
D773	8-719-075-50	DIODE	SELS6B14C-TP6 (BACK LIGHT)			
D774	8-719-075-50	DIODE	SELS6B14C-TP6 (BACK LIGHT)			
D775	8-719-075-50	DIODE	SELS6B14C-TP6 (BACK LIGHT)			
D776	8-719-075-50	DIODE	SELS6B14C-TP6 (BACK LIGHT)			
< RESISTOR >						
R771	1-249-409-11	CARBON	220	5%	1/4W	F
R772	1-249-409-11	CARBON	220	5%	1/4W	F
R773	1-249-409-11	CARBON	220	5%	1/4W	F

\*\*\*\*\*

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks				Ref. No.	Part No.	Description	Remarks			
	A-4725-528-A	BD(CD) BOARD, COMPLETE *****							< FERRITE BEAD >				
		< CAPACITOR >					FB101	1-500-445-11	FERRITE	0uH			
		< IC >											
C101	1-163-133-00	CERAMIC CHIP	470PF	5%	50V								
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V		IC101	8-752-408-73	IC CXD3068Q				
C103	1-163-133-00	CERAMIC CHIP	470PF	5%	50V		IC102	8-759-713-70	IC AN41020A				
C104	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V		IC103	8-752-089-74	IC CXA2581N-T4				
C107	1-162-921-11	CERAMIC CHIP	33PF	5%	50V				< TRANSISTOR >				
C108	1-163-038-11	CERAMIC CHIP	0.1uF		25V								
C109	1-163-038-11	CERAMIC CHIP	0.1uF		25V		Q101	8-729-010-08	TRANSISTOR	MSB710-RT1			
C110	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V		Q102	8-729-424-08	TRANSISTOR	UN2111-TX			
C111	1-126-607-11	ELECT CHIP	47uF	20%	4V		Q103	8-729-920-85	TRANSISTOR	2SD1664-T100-QR			
C112	1-126-607-11	ELECT CHIP	47uF	20%	4V				< RESISTOR >				
C113	1-126-209-11	ELECT CHIP	100uF	20.00%	4V								
C114	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V		R102	1-216-077-00	RES-CHIP	15K	5%	1/10W	
C115	1-126-205-11	ELECT CHIP	47uF	20%	6.3V		R103	1-216-097-11	RES-CHIP	100K	5%	1/10W	
C117	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R104	1-216-077-00	RES-CHIP	15K	5%	1/10W	
C118	1-115-156-11	CERAMIC CHIP	1uF		10V		R105	1-216-049-11	RES-CHIP	1K	5%	1/10W	
							R109	1-216-099-00	METAL CHIP	120K	5%	1/10W	
C119	1-115-156-11	CERAMIC CHIP	1uF		10V								
C120	1-126-607-11	ELECT CHIP	47uF	20%	4V		R111	1-216-099-00	METAL CHIP	120K	5%	1/10W	
C151	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V		R113	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
C153	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R114	1-218-745-11	RES-CHIP	160K	5%	1/16W	
C164	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R115	1-216-085-00	METAL CHIP	33K	5%	1/10W	
							R116	1-216-085-00	METAL CHIP	33K	5%	1/10W	
C165	1-124-779-00	ELECT CHIP	10uF	20%	16V								
C166	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R118	1-216-295-11	SHORT	0			
C182	1-128-995-11	ELECT CHIP	100uF	20%	10V		R120	1-216-099-00	METAL CHIP	120K	5%	1/10W	
C201	1-126-246-11	ELECT CHIP	220uF	20%	4V		R122	1-216-097-11	RES-CHIP	100K	5%	1/10W	
C202	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R123	1-216-001-00	METAL CHIP	10	5%	1/10W	
							R124	1-216-001-00	METAL CHIP	10	5%	1/10W	
C203	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V								
C204	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V		R125	1-216-085-00	METAL CHIP	33K	5%	1/10W	
C205	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R126	1-216-085-00	METAL CHIP	33K	5%	1/10W	
C209	1-162-927-11	CERAMIC CHIP	100PF	5%	50V		R151	1-216-097-11	RES-CHIP	100K	5%	1/10W	
C211	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V		R152	1-216-065-00	RES-CHIP	4.7K	5%	1/10W	
							R163	1-216-295-11	SHORT	0			
C212	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V								
C213	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V		R164	1-216-295-11	SHORT	0			
C215	1-107-823-11	CERAMIC CHIP	0.47uF	10.00%	16V		R167	1-216-295-11	SHORT	0			
C216	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V		R168	1-216-295-11	SHORT	0			
C221	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R176	1-216-295-11	SHORT	0			
							R179	1-216-295-11	SHORT	0			
C222	1-163-038-11	CERAMIC CHIP	0.1uF		25V								
C224	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R201	1-216-085-00	METAL CHIP	33K	5%	1/10W	
C227	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R202	1-216-073-00	METAL CHIP	10K	5%	1/10W	
C228	1-115-156-11	CERAMIC CHIP	1uF		10V		R203	1-216-097-11	RES-CHIP	100K	5%	1/10W	
C229	1-163-038-11	CERAMIC CHIP	0.1uF		25V		R204	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
							R205	1-216-049-11	RES-CHIP	1K	5%	1/10W	
C231	1-128-995-11	ELECT CHIP	100uF	20%	10V								
C234	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V		R206	1-216-065-00	RES-CHIP	4.7K	5%	1/10W	
C235	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V		R207	1-216-121-11	RES-CHIP	1M	5%	1/10W	
C236	1-107-823-11	CERAMIC CHIP	0.47uF	10.00%	16V		R212	1-216-033-00	METAL CHIP	220	5%	1/10W	
C237	1-162-919-11	CERAMIC CHIP	22PF		50V		R213	1-216-295-11	SHORT	0			
							R214	1-216-295-11	SHORT	0			
C240	1-163-038-11	CERAMIC CHIP	0.1uF		25V								
		< CONNECTOR >					R215	1-216-295-11	SHORT	0			
CN101	1-784-873-21	CONNECTOR,FFC(LIF(NON-ZIF))22P					R216	1-216-033-00	METAL CHIP	220	5%	1/10W	
CN102	1-794-424-11	CONNECTOR, FCC/FPC 16P					R217	1-216-065-00	RES-CHIP	4.7K	5%	1/10W	
		< DIODE >					R218	1-216-049-11	RES-CHIP	1K	5%	1/10W	
							R219	1-216-049-11	RES-CHIP	1K	5%	1/10W	
D101	8-719-422-12	DIODE UDZ-TE-17-3.9B					R220	1-216-295-11	SHORT	0			
							R221	1-216-033-00	METAL CHIP	220	5%	1/10W	
							R226	1-216-025-11	RES-CHIP	100	5%	1/10W	
							R227	1-216-097-11	RES-CHIP	100K	5%	1/10W	
							R228	1-216-113-00	METAL CHIP	470K	5%	1/10W	

# HCD-CL5MD

BD (CD)

BD (MD)

Ref. No.	Part No.	Description	Remarks		
R229	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R230	1-216-295-11	SHORT	0		
R240	1-216-295-11	SHORT	0		
< NETWORK >					
RN201	1-233-576-11	RES, CHIP NETWORK 100			
RN202	1-233-576-11	RES, CHIP NETWORK 100			
< VARIABLE RESISTOR >					
RV101	1-223-997-21	RES, CARBON ADJ VAR 47K			
< VIBRATOR >					
X201	1-767-518-11	VIBRATOR, CRYSTAL 33.8MHz			
*****					
A-4725-473-A		BD(MD)BOARD, COMPLETE			
*****					
< CAPACITOR >					
C101	1-135-259-11	TANTAL. CHIP	10uF	20.00%	6.3V
C102	1-135-259-11	TANTAL. CHIP	10uF	20.00%	6.3V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C105	1-115-416-11	CERAMIC CHIP	0.001uF	5.00%	25V
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C108	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C109	1-164-677-11	CERAMIC CHIP	0.033uF	10.00%	16V
C110	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C111	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C112	1-110-563-11	CERAMIC CHIP	0.068uF	10.00%	16V
C113	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C114	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C115	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C116	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C119	1-165-176-11	CERAMIC CHIP	0.047uF	10.00%	16V
C120	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C121	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C125	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C128	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C131	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C132	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C133	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C141	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C142	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C143	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C144	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C145	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C146	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C147	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C151	1-117-370-11	CERAMIC CHIP	10uF		10V
C152	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C153	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C154	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C155	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C156	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C157	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description	Remarks		
C158	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C159	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C160	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C161	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C162	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C163	1-125-891-11	CERAMIC CHIP	0.47uF	10.00%	10V
C164	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C165	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C166	1-125-891-11	CERAMIC CHIP	0.47uF	10.00%	10V
C167	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V
C169	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C173	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C174	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C180	1-117-370-11	CERAMIC CHIP	10uF		10V
C181	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C182	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C183	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C184	1-117-970-11	ELECT CHIP	22uF	20.00%	10V
C185	1-131-872-11	CERAMIC CHIP	1000PF	10%	630V
C191	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C192	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C193	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C194	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C195	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C196	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1401	1-117-720-11	CERAMIC CHIP	4.7uF		10V
< CONNECTOR >					
CN101	1-766-833-21	CONNECTOR, FFC/FPC (ZIF) 21P			
CN102	1-784-835-21	CONNECTOR,FFC(LIF(NON-ZIF))27P			
CN103	1-784-869-21	CONNECTOR,FFC(LIF(NON-ZIF))17P			
* CN104	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN105	1-784-859-21	CONNECTOR, FFC(LIF(NON-ZIF))7P			
< DIODE >					
D101	8-719-988-61	DIODE 1SS355TE-17			
D181	8-719-080-81	DIODE FS1J6			
D183	8-719-080-81	DIODE FS1J6			
< IC >					
IC101	8-752-080-95	IC CXA2523AR			
IC102	8-759-473-51	IC TLV2361CDBV			
IC141	8-759-430-25	IC BH6511FS-E2			
IC151	8-752-404-64	IC CXD2662R			
IC152	8-759-599-51	IC MSM51V17400D-50TS-K			
IC181	8-759-481-17	IC MC74ACT08DTR2			
IC190	8-759-677-64	IC L88M35T			
IC195	8-759-640-41	IC BR24C08F-E2			
< COIL >					
L101	1-500-245-11	FERRITE	0uH		
L102	1-500-245-11	FERRITE	0uH		
L103	1-500-245-11	FERRITE	0uH		
L105	1-414-235-11	FERRITE	0uH		
L106	1-500-245-11	FERRITE	0uH		
L121	1-500-245-11	FERRITE	0uH		
L122	1-500-245-11	FERRITE	0uH		
L131	1-500-245-11	FERRITE	0uH		
L141	1-412-029-11	INDUCTOR CHIP	10uH		
L142	1-412-032-11	INDUCTOR CHIP	100uH		

BD (MD)

DIGITAL

Ref. No.	Part No.	Description				Remarks	Ref. No.	Part No.	Description				Remarks
L143	1-412-029-11	INDUCTOR CHIP	10uH				R136	1-216-302-00	METAL CHIP	2.7	5%	1/10W	
L144	1-412-032-11	INDUCTOR CHIP	100uH				R138	1-216-833-11	METAL CHIP	10K	5%	1/16W	
L145	1-412-032-11	INDUCTOR CHIP	100uH				R150	1-216-833-11	METAL CHIP	10K	5%	1/16W	
L146	1-469-855-21	FERRITE	0uH				R151	1-216-833-11	METAL CHIP	10K	5%	1/16W	
L147	1-469-855-21	FERRITE	0uH				R153	1-216-833-11	METAL CHIP	10K	5%	1/16W	
L161	1-500-245-11	FERRITE	0uH				R155	1-216-864-11	SHORT	0			
L171	1-500-245-11	FERRITE	0uH				R156	1-216-864-11	SHORT	0			
L180	1-469-855-21	FERRITE	0uH				R158	1-216-809-11	METAL CHIP	100	5%	1/16W	
L181	1-469-855-21	FERRITE	0uH				R162	1-216-833-11	METAL CHIP	10K	5%	1/16W	
L182	1-500-245-11	FERRITE	0uH				R167	1-216-833-11	METAL CHIP	10K	5%	1/16W	
L183	1-216-296-11	SHORT	0				R168	1-216-845-11	METAL CHIP	100K	5%	1/16W	
L184	1-216-296-11	SHORT	0				R169	1-216-855-11	METAL CHIP	680K	5%	1/16W	
< TRANSISTOR >						R170	1-216-827-11	METAL CHIP	3.3K	5%	1/16W		
Q101	8-729-403-35	TRANSISTOR	UN5113-TX				R171	1-216-821-11	METAL CHIP	1K	5%	1/16W	
Q121	8-729-403-35	TRANSISTOR	UN5113-TX				R173	1-216-821-11	METAL CHIP	1K	5%	1/16W	
Q122	8-729-101-07	TRANSISTOR	2SB798-T1DK				R174	1-216-811-11	METAL CHIP	150	5%	1/16W	
Q131	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR				R177	1-216-805-11	METAL CHIP	47	5%	1/16W	
Q132	8-729-903-10	TRANSISTOR	FMW1-T-148				R179	1-216-295-11	SHORT	0			
						R181	1-216-841-11	METAL CHIP	47K	5%	1/16W		
Q133	8-729-402-93	TRANSISTOR	UN5214-TX				R182	1-216-841-11	METAL CHIP	47K	5%	1/16W	
Q134	8-729-402-93	TRANSISTOR	UN5214-TX				R183	1-216-841-11	METAL CHIP	47K	5%	1/16W	
Q181	8-729-018-75	TRANSISTOR	2SJ278MYTR				R184	1-220-942-11	METAL CHIP	3.3	1%	1/4	
Q182	8-729-017-65	TRANSISTOR	2SK1764KYTR				R185	1-220-942-11	METAL CHIP	3.3	1%	1/4	
< RESISTOR >						R195	1-216-833-11	METAL CHIP	10K	5%	1/16W		
						R196	1-216-833-11	METAL CHIP	10K	5%	1/16W		
R101	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R197	1-216-833-11	METAL CHIP	10K	5%	1/16W		
R102	1-216-853-11	METAL CHIP	470K	5%	1/16W	R218	1-216-864-11	SHORT	0				
R103	1-216-863-11	RES-CHIP	3.3M	5%	1/16W	< SWITCH >							
R104	1-216-853-11	METAL CHIP	470K	5%	1/16W	S101	1-762-596-21	SWITCH, PUSH (1 KEY) (LIMIT IN SW)					
R105	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	S102	1-771-957-11	SWITCH, PUSH (2 KEY) (REFRECT PROTECT)					
R106	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	S103	1-771-956-21	SWITCH, PUSH (1 KEY) (OUT SW)					
R107	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	S104	1-771-955-21	SWITCH, PUSH (1 KEY) (PLAY SW)					
R108	1-216-833-11	METAL CHIP	10K	5%	1/16W	S105	1-771-955-21	SWITCH, PUSH (1 KEY) (REC SW)					
R109	1-216-845-11	METAL CHIP	100K	5%	1/16W	< VIBRATOR >							
R110	1-216-845-11	METAL CHIP	100K	5%	1/16W	X171	1-781-569-21	OSCILLATOR, CRYSTAL 90MHz					
						*****							
R111	1-216-833-11	METAL CHIP	10K	5%	1/16W	A-4476-086-A	DIGITAL BOARD, COMPLETE						
R112	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	*****							
R113	1-216-833-11	METAL CHIP	10K	5%	1/16W	< CAPACITOR >							
R114	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	C1001	1-126-934-11	ELECT	220uF	20.00%	10V		
R115	1-216-833-11	METAL CHIP	10K	5%	1/16W	C1002	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R116	1-216-839-11	METAL CHIP	33K	5%	1/16W	C1003	1-126-933-11	ELECT	100uF	20.00%	16V		
R117	1-216-837-11	METAL CHIP	22K	5%	1/16W	C1004	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R118	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W	C1005	1-126-933-11	ELECT	100uF	20.00%	16V		
R119	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W	C1006	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R120	1-218-889-11	METAL CHIP	56K	0.5%	1/16W	C1007	1-126-933-11	ELECT	100uF	20.00%	16V		
R121	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W	C1008	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R122	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W	C1009	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R123	1-216-819-11	METAL CHIP	680	5%	1/16W	C1010	1-126-933-11	ELECT	100uF	20.00%	16V		
R124	1-216-809-11	METAL CHIP	100	5%	1/16W	C1011	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R125	1-216-815-11	METAL CHIP	330	5%	1/16W	C1012	1-126-933-11	ELECT	100uF	20.00%	16V		
R126	1-216-819-11	METAL CHIP	680	5%	1/16W	C1013	1-126-933-11	ELECT	100uF	20.00%	16V		
R127	1-216-845-11	METAL CHIP	100K	5%	1/16W	C1014	1-163-038-11	CERAMIC CHIP	0.1uF		25V		
R128	1-219-724-11	METAL CHIP	1	1%	1/4W	C1015	1-126-933-11	ELECT	100uF	20.00%	16V		
R129	1-216-298-00	METAL CHIP	2.2	5%	1/10W								
R130	1-216-829-11	METAL CHIP	4.7K	5%	1/16W								
R131	1-216-833-11	METAL CHIP	10K	5%	1/16W								
R132	1-216-839-11	METAL CHIP	33K	5%	1/16W								
R133	1-216-821-11	METAL CHIP	1K	5%	1/16W								
R134	1-216-821-11	METAL CHIP	1K	5%	1/16W								
R135	1-216-821-11	METAL CHIP	1K	5%	1/16W								

HCD-CL5MD

DIGITAL

DISK SENSOR

Ref. No.	Part No.	Description	Remarks		
C1016	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1017	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1018	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1019	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C1020	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C1021	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1022	1-126-933-11	ELECT	100uF	20.00%	16V
C1023	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1024	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1025	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1026	1-126-933-11	ELECT	100uF	20.00%	16V
C1027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1034	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1035	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C1037	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1038	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1039	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1040	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1041	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1044	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C1045	1-126-933-11	ELECT	100uF	20.00%	16V
C1046	1-136-153-00	FILM	0.01uF	5%	50V
C1047	1-136-153-00	FILM	0.01uF	5%	50V
C1048	1-126-933-11	ELECT	100uF	20.00%	16V
C1049	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1050	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1051	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1052	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
< CONNECTOR >					
CN1001	1-784-786-11	CONNECTOR, FFC 25P			
CN1003	1-779-295-11	CONNECTOR,FFC(LIF(NON-ZIF))27P			
CN1004	1-779-285-11	CONNECTOR,FFC(LIF(NON-ZIF))17P			
< IC >					
IC1001	8-759-828-80	IC M30805MG-205GP			
IC1004	8-759-822-09	IC LB1641			
IC1005	8-759-675-78	IC UDA1360TS			
IC1006	8-759-675-77	IC UDA1350AH			
< COIL >					
L1001	1-412-533-21	INDUCTOR	47uH		
< TRANSISTOR >					
Q1001	8-729-402-42	TRANSISTOR	UN5213-TX		
Q1002	8-729-602-36	TRANSISTOR	2SA1602TP-1EF		
Q1004	8-729-403-35	TRANSISTOR	UN5113-TX		
Q2001	8-729-602-36	TRANSISTOR	2SA1602TP-1EF		
Q2002	8-729-015-76	TRANSISTOR	UN5211-TX		
< RESISTOR >					
R1001	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R1002	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R1005	1-216-025-11	RES-CHIP	100	5%	1/10W
R1006	1-216-025-11	RES-CHIP	100	5%	1/10W
R1007	1-216-025-11	RES-CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R1010	1-216-025-11	RES-CHIP	100	5%	1/10W
R1011	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1012	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1013	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1014	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1015	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1016	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1017	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1018	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1024	1-216-041-00	METAL CHIP	470	5%	1/10W
R1033	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R1034	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R1035	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1036	1-216-295-11	SHORT	0		
R1057	1-216-065-00	RES-CHIP	4.7K	5%	1/10W
R1058	1-216-025-11	RES-CHIP	100	5%	1/10W
R1059	1-216-025-11	RES-CHIP	100	5%	1/10W
R1060	1-216-025-11	RES-CHIP	100	5%	1/10W
R1071	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1072	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1073	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1076	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1077	1-216-295-11	SHORT	0		
R1078	1-216-295-11	SHORT	0		
R1080	1-216-295-11	SHORT	0		
R1081	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1082	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1085	1-216-073-00	METAL CHIP	10K	5%	1/10W
R1087	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R1088	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R1090	1-216-041-00	METAL CHIP	470	5%	1/10W
R1091	1-216-033-00	METAL CHIP	220	5%	1/10W
R1092	1-216-033-00	METAL CHIP	220	5%	1/10W
R1093	1-216-033-00	METAL CHIP	220	5%	1/10W
R1094	1-216-033-00	METAL CHIP	220	5%	1/10W
R1095	1-216-039-00	METAL CHIP	390	5%	1/10W
R2002	1-216-296-11	SHORT	0		
R2005	1-216-295-11	SHORT	0		
R2006	1-216-025-11	RES-CHIP	100	5%	1/10W
R2007	1-216-097-11	RES-CHIP	100K	5%	1/10W
R2008	1-216-025-11	RES-CHIP	100	5%	1/10W
< VIBRATOR >					
X1001	1-579-175-11	VIBRATOR, CERAMIC 10MHz			
*****					
	1-678-463-11	DISK SENSOR BOARD			
*****					
< IC >					
IC751	8-749-924-30	PHOTO REFLECTOR GP2S28			
< RESISTOR >					
R751	1-249-407-11	CARBON	150	5%	1/4W F
*****					



DRIVER

IN OUT SW

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	1-678-460-11	DRIVER BOARD *****		C125	1-126-964-11	ELECT 10uF	20.00% 50V
		< CAPACITOR >		C126	1-126-964-11	ELECT 10uF	20.00% 50V
C701	1-124-261-00	ELECT 10uF	20% 50V	C127	1-126-964-11	ELECT 10uF	20.00% 50V
C705	1-124-261-00	ELECT 10uF	20% 50V	C128	1-126-964-11	ELECT 10uF	20.00% 50V
C706	1-164-159-11	CERAMIC 0.1uF	50V	C130	1-126-916-11	ELECT 1000uF	20.00% 6.3V
C707	1-164-159-11	CERAMIC 0.1uF	50V				
		< CONNECTOR >		C141	1-126-964-11	ELECT 10uF	20.00% 50V
CN701	1-785-324-11	PIN, CONNECTOR (STRAIGHT) 12P		C142	1-162-960-11	CERAMIC CHIP 220PF	10% 50V (AEP,UK)
CN702	1-785-328-11	PIN, CONNECTOR (LIGHT ANGLE)2P					
CN703	1-785-331-11	PIN, CONNECTOR (LIGHT ANGLE)5P		C143	1-164-156-11	CERAMIC CHIP 0.1uF	25V
CN704	1-785-329-11	PIN, CONNECTOR (LIGHT ANGLE)3P		C183	1-109-889-11	ELECT 1uF	20.00% 50V
CN705	1-785-329-21	PIN, CONNECTOR (LIGHT ANGLE)3P		C191	1-126-964-11	ELECT 10uF	20.00% 50V
		< IC >					
IC701	8-759-598-69	IC BA6956AN		C192	1-162-960-11	CERAMIC CHIP 220PF	10% 50V (AEP,UK)
		< TRANSISTOR >					
Q701	8-729-029-66	TRANSISTOR RT1N141S-TP		C200	1-126-964-11	ELECT 10uF	20.00% 50V
		< RESISTOR >		C201	1-104-665-11	ELECT 100uF	20.00% 10V
R701	1-249-429-11	CARBON 10K	5% 1/4W	C202	1-130-477-00	MYLAR 0.0033uF	5% 50V
R702	1-249-401-11	CARBON 47	5% 1/4W F	C203	1-126-964-11	ELECT 10uF	20.00% 50V
R705	1-249-435-11	CARBON 33K	5% 1/4W				
R706	1-249-417-11	CARBON 1K	5% 1/4W F	C204	1-136-165-00	FILM 0.1uF	5.00% 50V
R707	1-249-429-11	CARBON 10K	5% 1/4W	C205	1-136-169-00	FILM 0.22uF	5.00% 50V
*****				C206	1-130-479-00	MYLAR 0.0047uF	5% 50V
	1-678-462-11	IN OUT SW BOARD *****		C207	1-126-964-11	ELECT 10uF	20.00% 50V
		< SWITCH >		C208	1-136-165-00	FILM 0.1uF	5.00% 50V
S741	1-771-821-11	SWITCH, PUSH (1 KEY) (IN)					
S742	1-771-821-11	SWITCH, PUSH (1 KEY) (OUT)		C209	1-136-165-00	FILM 0.1uF	5.00% 50V
*****				C210	1-126-963-11	ELECT 4.7uF	20.00% 50V
A-4475-470-A	MAIN BOARD, COMPLETE (AEP,UK) *****			C211	1-126-964-11	ELECT 10uF	20.00% 50V
A-4475-488-A	MAIN BOARD, COMPLETE (AUS,HK) *****			C212	1-126-964-11	ELECT 10uF	20.00% 50V
	7-685-646-79	SCREW +BVTP 3X8	TYPE2 N-S	C214	1-126-964-11	ELECT 10uF	20.00% 50V
		< CAPACITOR >					
C103	1-126-767-11	ELECT 1000uF	20.00% 16V	C218	1-126-964-11	ELECT 10uF	20.00% 50V
C104	1-126-956-11	ELECT 0.1uF	20.00% 50V	C219	1-126-964-11	ELECT 10uF	20.00% 50V
C105	1-126-933-11	ELECT 100uF	20.00% 16V	C253	1-126-964-11	ELECT 10uF	20.00% 50V
C106	1-126-935-11	ELECT 470uF	20.00% 16V	C254	1-136-165-00	FILM 0.1uF	5.00% 50V
C107	1-126-956-11	ELECT 0.1uF	20.00% 50V	C255	1-136-169-00	FILM 0.22uF	5.00% 50V
C108	1-126-964-11	ELECT 10uF	20.00% 50V	C256	1-130-479-00	MYLAR 0.0047uF	5% 50V
C109	1-126-953-11	ELECT 2200uF	20.00% 35V	C257	1-126-964-11	ELECT 10uF	20.00% 50V
C110	1-115-364-11	ELECT 22000uF	20.00% 16V	C258	1-136-165-00	FILM 0.1uF	5.00% 50V
C114	1-126-964-11	ELECT 10uF	20.00% 50V	C259	1-136-165-00	FILM 0.1uF	5.00% 50V
C116	1-126-916-11	ELECT 1000uF	20.00% 6.3V	C260	1-126-963-11	ELECT 4.7uF	20.00% 50V
C117	1-126-916-11	ELECT 1000uF	20.00% 6.3V	C261	1-126-964-11	ELECT 10uF	20.00% 50V
C119	1-126-916-11	ELECT 1000uF	20.00% 6.3V	C262	1-126-964-11	ELECT 10uF	20.00% 50V
C120	1-126-964-11	ELECT 10uF	20.00% 50V	C264	1-126-964-11	ELECT 10uF	20.00% 50V
C121	1-164-156-11	CERAMIC CHIP 0.1uF	25V	C301	1-126-960-11	ELECT 1uF	20.00% 50V
C122	1-126-935-11	ELECT 470uF	20.00% 16V	C303	1-136-165-00	FILM 0.1uF	5.00% 50V
				C305	1-126-964-11	ELECT 10uF	20.00% 50V
				C306	1-126-960-11	ELECT 1uF	20.00% 50V
				C307	1-126-959-11	ELECT 0.47uF	20.00% 50V
				C308	1-126-964-11	ELECT 10uF	20.00% 50V
				C309	1-137-194-81	FILM 0.47uF	5.00% 50V
				C310	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
				C311	1-126-964-11	ELECT 10uF	20.00% 50V
				C312	1-126-959-11	ELECT 0.47uF	20.00% 50V
				C313	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
				C314	1-126-964-11	ELECT 10uF	20.00% 50V
				C315	1-126-963-11	ELECT 4.7uF	20.00% 50V
				C316	1-126-933-11	ELECT 100uF	20.00% 16V
				C317	1-104-665-11	ELECT 100uF	20.00% 10V
				C319	1-126-959-11	ELECT 0.47uF	20.00% 50V
				C321	1-126-964-11	ELECT 10uF	20.00% 50V

# HCD-CL5MD

## MAIN

Ref. No.	Part No.	Description	Remarks		
C322	1-126-964-11	ELECT	10uF	20.00%	50V
C351	1-126-960-11	ELECT	1uF	20.00%	50V
C353	1-136-165-00	FILM	0.1uF	5.00%	50V
C355	1-126-964-11	ELECT	10uF	20.00%	50V
C356	1-126-960-11	ELECT	1uF	20.00%	50V
C357	1-126-959-11	ELECT	0.47uF	20.00%	50V
C358	1-126-964-11	ELECT	10uF	20.00%	50V
C359	1-137-194-11	FILM	0.47uF	5.00%	50V
C360	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C362	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C369	1-126-959-11	ELECT	0.47uF	20.00%	50V
C410	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C411	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C412	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C413	1-125-891-11	CERAMIC CHIP	0.47uF	10.00%	10V
C414	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C416	1-126-916-11	ELECT	1000uF	20.00%	6.3V
C417	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C462	1-104-665-11	ELECT	100uF	20.00%	10V
C464	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C497	1-126-964-11	ELECT	10uF	20.00%	50V
C498	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C499	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C501	1-136-165-00	FILM	0.1uF	5.00%	50V
C502	1-136-165-00	FILM	0.1uF	5.00%	50V
C503	1-126-964-11	ELECT	10uF	20.00%	50V
C506	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C507	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C508	1-126-964-11	ELECT	10uF	20.00%	50V
C509	1-104-665-11	ELECT	100uF	20.00%	10V
C521	1-126-382-11	ELECT	100uF	20.00%	10V
C533	1-126-382-11	ELECT	100uF	20.00%	10V
C545	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C546	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C547	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C550	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C551	1-104-665-11	ELECT	100uF	20.00%	10V
C552	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C553	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C554	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C601	1-126-963-11	ELECT	4.7uF	20.00%	50V
C602	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C603	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C604	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C605	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C606	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C607	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C608	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C610	1-126-961-11	ELECT	2.2uF	20.00%	50V
C611	1-126-961-11	ELECT	2.2uF	20.00%	50V
C612	1-126-924-11	ELECT	330uF	20.00%	10V
C613	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C614	1-126-961-11	ELECT	2.2uF	20.00%	50V
C615	1-126-961-11	ELECT	2.2uF	20.00%	50V
C617	1-126-934-11	ELECT	220uF	20.00%	10V
C620	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C621	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C708	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C709	1-126-960-11	ELECT	1uF	20.00%	50V

Ref. No.	Part No.	Description	Remarks		
C710	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C717	1-126-382-11	ELECT	100uF	20.00%	10V
< CONNECTOR >					
CN101	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P			
CN201	1-784-747-11	CONNECTOR, FFC 25P			
CN251	1-778-981-21	CONNECTOR, BOARD TO BOARD 13P			
* CN301	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P			
CN304	1-568-828-11	CONNECTOR, FFC 9P			
* CN305	1-568-936-11	PIN, CONNECTOR 9P			
CN501	1-506-469-11	PIN, CONNECTOR 4P			
CN502	1-784-776-11	CONNECTOR, FFC 15P (AEP,UK)			
CN502	1-568-830-11	CONNECTOR, FFC 11P (AUS,HK)			
CN503	1-793-766-11	CONNECTOR, BOARD TO BOARD 30P			
CN551	1-774-136-11	CONNECTOR, ROUND TYPE 6P			
CN701	1-784-786-11	CONNECTOR, FFC 25P			
< DIODE >					
D103	8-719-988-61	DIODE	1SS355TE-17		
D106	8-719-083-89	DIODE	11ES2N-TB5		
D107	8-719-988-61	DIODE	1SS355TE-17		
D108	8-719-083-89	DIODE	11ES2N-TB5		
D182	8-719-988-61	DIODE	1SS355TE-17		
D202	8-719-976-99	DIODE	DTZ-TT11-5.1B		
D203	8-719-988-61	DIODE	1SS355TE-17		
D204	8-719-083-89	DIODE	11ES2N-TB5		
D205	8-719-083-89	DIODE	11ES2N-TB5		
D206	8-719-083-89	DIODE	11ES2N-TB5		
D361	8-719-988-61	DIODE	1SS355TE-17		
D501	8-719-988-61	DIODE	1SS355TE-17		
D502	8-719-988-61	DIODE	1SS355TE-17		
D504	8-719-988-61	DIODE	1SS355TE-17		
D505	8-719-988-61	DIODE	1SS355TE-17		
D506	8-719-988-61	DIODE	1SS355TE-17		
D507	8-719-988-61	DIODE	1SS355TE-17		
D508	8-719-988-61	DIODE	1SS355TE-17		
D509	8-719-988-61	DIODE	1SS355TE-17		
D511	8-719-988-61	DIODE	1SS355TE-17		
D512	8-719-988-61	DIODE	1SS355TE-17		
D513	8-719-988-61	DIODE	1SS355TE-17		
D514	8-719-988-61	DIODE	1SS355TE-17		
< EARTH >					
* EP901	1-537-738-21	TERMINAL, EARTH			
< FERRITE BEAD >					
FB416	1-414-772-11	FERRITE	0uH		
FB462	1-414-772-11	FERRITE	0uH		
FB499	1-414-772-11	FERRITE	0uH		
FB500	1-414-772-11	FERRITE	0uH		
FB501	1-414-772-11	FERRITE	0uH		
FB502	1-414-772-11	FERRITE	0uH		
FB503	1-414-772-11	FERRITE	0uH		
FB504	1-414-772-11	FERRITE	0uH		
FB505	1-414-772-11	FERRITE	0uH		
FB506	1-414-772-11	FERRITE	0uH		

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
FB507	1-414-772-11	FERRITE	0uH	Q183	8-729-027-23	TRANSISTOR	DTA114EKA-T146
FB508	1-414-772-11	FERRITE	0uH	Q201	8-729-107-43	TRANSISTOR	2SC3624-T1L1718
FB511	1-414-772-11	FERRITE	0uH	Q203	8-729-107-43	TRANSISTOR	2SC3624-T1L1718
FB512	1-414-772-11	FERRITE	0uH	Q251	8-729-107-43	TRANSISTOR	2SC3624-T1L1718
FB514	1-414-772-11	FERRITE	0uH	Q253	8-729-107-43	TRANSISTOR	2SC3624-T1L1718
FB551	1-216-864-91	SHORT	0	Q271	8-729-900-53	TRANSISTOR	DTC114EKA-T146
FB700	1-414-772-11	FERRITE	0uH	Q391	8-729-140-04	TRANSISTOR	2SB1116-TP-LK
< IC >				Q392	8-729-900-53	TRANSISTOR	DTC114EKA-T146
IC101	8-759-604-32	IC M5F7810L		Q396	8-729-116-57	TRANSISTOR	2SB1068TP-K
IC102	8-759-701-59	IC AN7809		Q397	8-729-900-53	TRANSISTOR	DTC114EKA-T146
IC103	8-759-604-86	IC M5F7807L		Q501	8-729-120-28	TRANSISTOR	2SC3052EF-T1-LEF
IC105	8-759-158-62	IC TA78057S		Q551	8-729-025-28	TRANSISTOR	2SK1828TE85L
IC108	8-759-039-69	IC uPC7805AHF		Q552	8-729-025-28	TRANSISTOR	2SK1828TE85L
< IC >				< RESISTOR >			
IC110	8-759-686-72	IC uPC29L04J-T		R101	1-216-817-11	METAL CHIP	470 5% 1/16W
IC201	8-759-494-40	IC M62428AFP600C		R120	1-216-821-11	METAL CHIP	1K 5% 1/16W
IC301	8-759-652-80	IC HA12227F		R121	1-216-864-11	SHORT	0
IC401	8-759-697-74	IC M30622MGA-A33FP		R123	1-216-822-11	METAL CHIP	1.2K 5% 1/16W
IC501	8-759-635-63	IC M51943BSL-TP		R125	1-216-864-11	SHORT	0
IC502	8-759-481-02	IC M62016L		R141	1-216-821-11	METAL CHIP	1K 5% 1/16W
IC503	8-759-548-57	IC SN74LV00ANSR		R142	1-216-845-11	METAL CHIP	100K 5% 1/16W
IC551	8-749-923-05	TORX178B		R181	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
IC552	8-759-549-80	IC P82B715TD.118		R182	1-216-845-11	METAL CHIP	100K 5% 1/16W
< JACK >				R183	1-216-833-11	METAL CHIP	10K 5% 1/16W
J101	1-770-272-11	JACK, PIN 2P (VIDEO(AUDIO)IN)		R184	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
< JUMPER RESISTOR >				R191	1-216-821-11	METAL CHIP	1K 5% 1/16W
JR101	1-216-864-11	SHORT	0	R192	1-216-845-11	METAL CHIP	100K 5% 1/16W
JR215	1-216-864-11	SHORT	0	R201	1-216-839-11	METAL CHIP	33K 5% 1/16W
JR265	1-216-864-11	SHORT	0	R202	1-216-857-11	METAL CHIP	1M 5% 1/16W
JR501	1-216-864-11	SHORT	0 (AEP,UK)	R203	1-216-849-11	METAL CHIP	220K 5% 1/16W
JR502	1-216-864-11	SHORT	0 (AEP,UK)	R204	1-216-857-11	METAL CHIP	1M 5% 1/16W
JR503	1-216-864-11	SHORT	0 (AEP,UK)	R205	1-216-839-11	METAL CHIP	33K 5% 1/16W
JR504	1-216-864-11	SHORT	0	R206	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
JR505	1-216-864-11	SHORT	0	R207	1-216-845-11	METAL CHIP	100K 5% 1/16W
JR506	1-216-864-11	SHORT	0	R208	1-216-864-11	SHORT	0
JR511	1-216-864-11	SHORT	0	R209	1-216-864-11	SHORT	0
JR512	1-216-864-11	SHORT	0	R210	1-216-864-11	SHORT	0
JR513	1-216-864-11	SHORT	0	R213	1-216-821-11	METAL CHIP	1K 5% 1/16W
JR514	1-216-864-11	SHORT	0	R214	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
JR516	1-216-864-11	SHORT	0	R215	1-216-821-11	METAL CHIP	1K 5% 1/16W
JR922	1-216-864-11	SHORT	0 (AUS,HK)	R216	1-216-845-11	METAL CHIP	100K 5% 1/16W
JR923	1-216-864-11	SHORT	0 (AUS,HK)	R253	1-216-849-11	METAL CHIP	220K 5% 1/16W
< COIL >				R254	1-216-857-11	METAL CHIP	1M 5% 1/16W
L201	1-216-864-11	SHORT	0	R255	1-216-839-11	METAL CHIP	33K 5% 1/16W
L311	1-410-393-11	INDUCTOR CHIP	100uH	R256	1-216-828-11	METAL CHIP	3.9K 5% 1/16W
L551	1-410-393-11	INDUCTOR CHIP	100uH	R257	1-216-845-11	METAL CHIP	100K 5% 1/16W
L552	1-410-381-11	INDUCTOR CHIP	10uH	R264	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
< TRANSISTOR >				R265	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q104	8-729-107-43	TRANSISTOR	2SC3624-T1L1718	R266	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q106	8-729-900-53	TRANSISTOR	DTC114EKA-T146	R301	1-216-839-11	METAL CHIP	33K 5% 1/16W
Q109	8-729-049-79	TRANSISTOR	RT1P137S-TP	R302	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
Q181	8-729-900-53	TRANSISTOR	DTC114EKA-T146	R303	1-216-864-11	SHORT	0
Q182	8-729-027-23	TRANSISTOR	DTA114EKA-T146	R304	1-216-809-11	METAL CHIP	100 5% 1/16W
				R305	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
				R306	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
				R307	1-216-832-11	METAL CHIP	8.2K 5% 1/16W
				R308	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
				R309	1-216-837-11	METAL CHIP	22K 5% 1/16W
				R311	1-216-857-11	METAL CHIP	1M 5% 1/16W

## HCD-CL5MD

## MAIN

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R312	1-218-745-11	RES-CHIP	160K	5%	1/16W	R431	1-216-833-11	METAL CHIP	10K	5%	1/16W
R314	1-216-821-11	METAL CHIP	1K	5%	1/16W	R432	1-216-833-11	METAL CHIP	10K	5%	1/16W
R315	1-216-833-11	METAL CHIP	10K	5%	1/16W	R433	1-216-833-11	METAL CHIP	10K	5%	1/16W
R316	1-216-838-11	METAL CHIP	27K	5%	1/16W	R435	1-216-809-11	METAL CHIP	100	5%	1/16W
R317	1-216-833-11	METAL CHIP	10K	5%	1/16W	R436	1-216-809-11	METAL CHIP	100	5%	1/16W
R318	1-216-833-11	METAL CHIP	10K	5%	1/16W	R437	1-216-809-11	METAL CHIP	100	5%	1/16W
R319	1-216-852-11	METAL CHIP	390K	5%	1/16W	R438	1-216-821-11	METAL CHIP	1K	5%	1/16W
R321	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R440	1-216-833-11	METAL CHIP	10K	5%	1/16W
R351	1-216-839-11	METAL CHIP	33K	5%	1/16W	R441	1-216-833-11	METAL CHIP	10K	5%	1/16W
R352	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R442	1-216-809-11	METAL CHIP	100	5%	1/16W
R353	1-216-864-91	SHORT	0			R443	1-216-809-11	METAL CHIP	100	5%	1/16W
R354	1-216-809-11	METAL CHIP	100	5%	1/16W	R444	1-216-809-11	METAL CHIP	100	5%	1/16W
R355	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R446	1-216-809-11	METAL CHIP	100	5%	1/16W
R356	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	R447	1-216-809-11	METAL CHIP	100	5%	1/16W
R357	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	R448	1-216-809-11	METAL CHIP	100	5%	1/16W
R358	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R449	1-216-809-11	METAL CHIP	100	5%	1/16W
R360	1-216-819-11	METAL CHIP	680	5%	1/16W	R450	1-216-809-11	METAL CHIP	100	5%	1/16W
R361	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R451	1-216-809-11	METAL CHIP	100	5%	1/16W
R362	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R452	1-216-809-11	METAL CHIP	100	5%	1/16W
R366	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R453	1-216-833-11	METAL CHIP	10K	5%	1/16W
R367	1-216-841-11	METAL CHIP	47K	5%	1/16W	R456	1-216-809-11	METAL CHIP	100	5%	1/16W
R368	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R457	1-216-809-11	METAL CHIP	100	5%	1/16W
R369	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R458	1-216-809-11	METAL CHIP	100	5%	1/16W
R370	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R459	1-216-809-11	METAL CHIP	100	5%	1/16W
R371	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R460	1-216-809-11	METAL CHIP	100	5%	1/16W
R372	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R461	1-216-809-11	METAL CHIP	100	5%	1/16W
R373	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R462	1-216-809-11	METAL CHIP	100	5%	1/16W
R375	1-218-296-11	RES-CHIP	75K	5%	1/16W	R463	1-216-814-11	METAL CHIP	270	5%	1/16W
R376	1-216-841-11	METAL CHIP	47K	5%	1/16W	R464	1-216-833-11	METAL CHIP	10K	5%	1/16W
R377	1-216-837-11	METAL CHIP	22K	5%	1/16W	R465	1-216-833-11	METAL CHIP	10K	5%	1/16W
R378	1-216-833-11	METAL CHIP	10K	5%	1/16W	R466	1-216-833-11	METAL CHIP	10K	5%	1/16W
R400	1-216-809-11	METAL CHIP	100	5%	1/16W	R467	1-216-833-11	METAL CHIP	10K	5%	1/16W
R401	1-216-809-11	METAL CHIP	100	5%	1/16W	R468	1-216-833-11	METAL CHIP	10K	5%	1/16W
R402	1-216-809-11	METAL CHIP	100	5%	1/16W	R470	1-216-809-11	METAL CHIP	100	5%	1/16W
R403	1-216-809-11	METAL CHIP	100	5%	1/16W	R471	1-216-809-11	METAL CHIP	100	5%	1/16W
R404	1-216-809-11	METAL CHIP	100	5%	1/16W	R472	1-216-833-11	METAL CHIP	10K	5%	1/16W
R405	1-216-809-11	METAL CHIP	100	5%	1/16W	R473	1-216-809-11	METAL CHIP	100	5%	1/16W
R406	1-216-809-11	METAL CHIP	100	5%	1/16W	R474	1-216-809-11	METAL CHIP	100	5%	1/16W
R407	1-216-809-11	METAL CHIP	100	5%	1/16W	R475	1-216-809-11	METAL CHIP	100	5%	1/16W
R409	1-216-833-11	METAL CHIP	10K	5%	1/16W	R476	1-216-809-11	METAL CHIP	100	5%	1/16W
R411	1-216-851-11	METAL CHIP	330K	5%	1/16W	R477	1-216-809-11	METAL CHIP	100	5%	1/16W
R412	1-216-833-11	METAL CHIP	10K	5%	1/16W	R478	1-216-809-11	METAL CHIP	100	5%	1/16W
R413	1-216-864-91	SHORT	0			R479	1-216-809-11	METAL CHIP	100	5%	1/16W
R414	1-216-809-11	METAL CHIP	100	5%	1/16W	R480	1-216-809-11	METAL CHIP	100	5%	1/16W
R415	1-216-833-11	METAL CHIP	10K	5%	1/16W	R481	1-216-809-11	METAL CHIP	100	5%	1/16W
R416	1-216-809-11	METAL CHIP	100	5%	1/16W	R482	1-216-809-11	METAL CHIP	100	5%	1/16W
R417	1-216-833-11	METAL CHIP	10K	5%	1/16W	R483	1-216-809-11	METAL CHIP	100	5%	1/16W
R418	1-216-809-11	METAL CHIP	100	5%	1/16W	R484	1-216-809-11	METAL CHIP	100	5%	1/16W
R419	1-216-809-11	METAL CHIP	100	5%	1/16W	R485	1-216-809-11	METAL CHIP	100	5%	1/16W
R420	1-216-809-11	METAL CHIP	100	5%	1/16W	R486	1-216-809-11	METAL CHIP	100	5%	1/16W
R421	1-216-809-11	METAL CHIP	100	5%	1/16W	R487	1-216-809-11	METAL CHIP	100	5%	1/16W
R422	1-216-809-11	METAL CHIP	100	5%	1/16W	R488	1-216-821-11	METAL CHIP	1K	5%	1/16W
R423	1-216-809-11	METAL CHIP	100	5%	1/16W	R489	1-216-809-11	METAL CHIP	100	5%	1/16W
R424	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R490	1-216-809-11	METAL CHIP	100	5%	1/16W
R425	1-216-809-11	METAL CHIP	100	5%	1/16W	R491	1-216-809-11	METAL CHIP	100	5%	1/16W
R426	1-216-849-11	METAL CHIP	220K	5%	1/16W	R492	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R427	1-216-809-11	METAL CHIP	100	5%	1/16W	R493	1-216-864-11	SHORT	0 (AEP,UK)		
R428	1-216-845-11	METAL CHIP	100K	5%	1/16W	R494	1-216-864-11	SHORT	0 (AUS,HK)		
R429	1-216-809-11	METAL CHIP	100	5%	1/16W	R495	1-216-814-11	METAL CHIP	270	5%	1/16W
R430	1-216-809-11	METAL CHIP	100	5%	1/16W	R496	1-216-833-11	METAL CHIP	10K	5%	1/16W

MAIN

MOTOR

PANEL

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R497	1-216-814-11	METAL CHIP	270	5%	1/16W	C708	1-162-282-31	CERAMIC	100PF	10%	50V
R499	1-216-833-11	METAL CHIP	10K	5%	1/16W	C710	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
R500	1-216-864-11	SHORT	0			C711	1-164-159-11	CERAMIC	0.1uF		50V
R501	1-216-833-11	METAL CHIP	10K	5%	1/16W	C712	1-126-791-11	ELECT	10uF	20.00%	16V
R502	1-216-841-11	METAL CHIP	47K	5%	1/16W	C713	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
R503	1-216-841-11	METAL CHIP	47K	5%	1/16W	C714	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
R505	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	C715	1-162-306-11	CERAMIC	0.01uF	30.00%	16V
R506	1-216-817-11	METAL CHIP	470	5%	1/16W	C720	1-162-282-31	CERAMIC	100PF	10%	50V
R508	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	C721	1-162-282-31	CERAMIC	100PF	10%	50V
R509	1-216-821-11	METAL CHIP	1K	5%	1/16W	C722	1-162-282-31	CERAMIC	100PF	10%	50V
R510	1-216-809-11	METAL CHIP	100	5%	1/16W	C723	1-162-282-31	CERAMIC	100PF	10%	50V
R513	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	C724	1-162-282-31	CERAMIC	100PF	10%	50V
R514	1-216-864-11	SHORT	0			C741	1-119-941-91	ELECT	470uF	20.00%	6.3V
R515	1-216-845-11	METAL CHIP	100K	5%	1/16W	C742	1-119-941-91	ELECT	470uF	20.00%	6.3V
R516	1-216-809-11	METAL CHIP	100	5%	1/16W	C791	1-164-159-11	CERAMIC	0.1uF		50V
R517	1-216-833-11	METAL CHIP	10K	5%	1/16W	C793	1-126-791-11	ELECT	10uF	20.00%	16V
R543	1-216-864-11	SHORT	0			C794	1-164-159-11	CERAMIC	0.1uF		50V
R544	1-216-864-11	SHORT	0			< CONNECTOR >					
R554	1-216-864-11	SHORT	0			CN701	1-793-767-11	CONNECTOR, BOARD TO BOARD 30P			
R555	1-216-845-11	METAL CHIP	100K	5%	1/16W	CN703	1-568-951-11	PIN, CONNECTOR 2P			
R556	1-216-833-11	METAL CHIP	10K	5%	1/16W	CN704	1-580-471-11	SOCKET, CONNECTOR 6P			
R557	1-216-835-11	METAL CHIP	15K	5%	1/16W	< DIODE >					
R558	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	D701	8-719-812-44	DIODE	SEL5220S-TP15		
R559	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	D702	8-719-911-19	DIODE	1SS133T-72		
R560	1-216-797-11	METAL CHIP	10	5%	1/16W	D703	8-719-024-99	DIODE	11ES2-NTA2B		
R561	1-216-797-11	METAL CHIP	10	5%	1/16W	D722	8-719-058-04	DIODE	SEL5223S-TP15		
R562	1-216-833-11	METAL CHIP	10K	5%	1/16W	D724	8-719-058-04	DIODE	SEL5223S-TP15		
R563	1-216-833-11	METAL CHIP	10K	5%	1/16W	D741	8-719-057-97	DIODE	SEL5923A-TP15		
R580	1-216-833-11	METAL CHIP	10K	5%	1/16W	D743	8-719-057-97	DIODE	SEL5923A-TP15		
R581	1-216-833-11	METAL CHIP	10K	5%	1/16W	D745	8-719-057-97	DIODE	SEL5923A-TP15		
R582	1-216-833-11	METAL CHIP	10K	5%	1/16W	D746	8-719-911-19	DIODE	1SS133T-72		
< VARIABLE RESISTOR >						< EARTH >					
RV301	1-241-764-11	RES, ADJ, CARBON 10K				* EP701	1-537-738-21	TERMINAL, EARTH			
RV351	1-241-764-11	RES, ADJ, CARBON 10K				* EP702	1-537-738-21	TERMINAL, EARTH			
< SWITCH >						< IC >					
S501	1-771-264-11	SWITCH, PUSH(DETECTION)(1 KEY)				IC702	8-749-011-05	IC	GP1U28X		
< VIBRATOR >						< JACK >					
X401	1-567-098-41	VIBRATOR, CRYSTAL 32.768kHz				J701	1-691-293-21	JACK (PHONES)			
X402	1-781-107-21	VIBRATOR, SERAMIC 16MHz				< TRANSISTOR >					
*****						Q701	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
1-678-461-11	MOTOR BOARD				Q702	8-729-119-78	TRANSISTOR	2SC2785TP-HFE			
*****						Q741	8-729-049-79	TRANSISTOR	RT1P137S-TP		
< CAPACITOR >						Q742	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
C721	1-162-306-11	CERAMIC	0.01uF	30.00%	16V	Q743	8-729-049-79	TRANSISTOR	RT1P137S-TP		
*****						Q744	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
A-4475-468-A	PANEL BOARD, COMPLETE				Q745	8-729-029-66	TRANSISTOR	DTC114ESA-TP			
*****						Q746	8-729-029-66	TRANSISTOR	DTC114ESA-TP		
C701	1-162-294-31	CERAMIC	0.001uF	10%	50V						
C702	1-162-294-31	CERAMIC	0.001uF	10%	50V						
C703	1-162-306-11	CERAMIC	0.01uF	30.00%	16V						
C706	1-162-282-31	CERAMIC	100PF	10%	50V						
C707	1-162-290-31	CERAMIC	470PF	10%	50V						

# HCD-CL5MD

PANEL	RELAY	RING SW	SUB POWER
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Ref. No.	Part No.	Description				Remarks	Ref. No.	Part No.	Description				Remarks	
< RESISTOR >							S728	1-762-875-21	SWITCH, KEYBOARD (SYNCRHO MODE)					
							S729	1-762-875-21	SWITCH, KEYBOARD (STOP)					
R701	1-249-417-11	CARBON	1K	5%	1/4W	F	S730	1-762-875-21	SWITCH, KEYBOARD (CD PLAY)					
R702	1-249-429-11	CARBON	10K	5%	1/4W		S731	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)					
R703	1-249-429-11	CARBON	10K	5%	1/4W		S732	1-762-875-21	SWITCH, KEYBOARD (GROOVE)					
R705	1-247-807-31	CARBON	100	5%	1/4W									
R706	1-247-807-31	CARBON	100	5%	1/4W		S733	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE/DIRECTION)					
							S734	1-762-875-21	SWITCH, KEYBOARD (REPEAT STEREO/MONO)					
R707	1-247-807-31	CARBON	100	5%	1/4W		S735	1-762-875-21	SWITCH, KEYBOARD (ENTER/START)					
R708	1-247-807-31	CARBON	100	5%	1/4W		S736	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)					
R709	1-247-807-31	CARBON	100	5%	1/4W		S737	1-762-875-21	SWITCH, KEYBOARD (TAPE PLAY)					
R710	1-247-807-31	CARBON	100	5%	1/4W									
R711	1-249-425-11	CARBON	4.7K	5%	1/4W	F	S738	1-762-875-21	SWITCH, KEYBOARD (MD PLAY)					
							S741	1-762-875-21	SWITCH, KEYBOARD (CD1)					
R712	1-247-843-11	CARBON	3.3K	5%	1/4W		S742	1-762-875-21	SWITCH, KEYBOARD (CD1 EJECT)					
R713	1-249-422-11	CARBON	2.7K	5%	1/4W	F	S743	1-762-875-21	SWITCH, KEYBOARD (CD2)					
R714	1-249-420-11	CARBON	1.8K	5%	1/4W	F	S744	1-762-875-21	SWITCH, KEYBOARD (CD2 EJECT)					
R715	1-249-418-11	CARBON	1.2K	5%	1/4W	F								
R716	1-249-417-11	CARBON	1K	5%	1/4W	F	S745	1-762-875-21	SWITCH, KEYBOARD (CD3)					
							S746	1-762-875-21	SWITCH, KEYBOARD (CD3 EJECT)					
R717	1-249-415-11	CARBON	680	5%	1/4W	F	S747	1-762-875-21	SWITCH, KEYBOARD (LEFT)					
R718	1-249-414-11	CARBON	560	5%	1/4W	F	S748	1-762-875-21	SWITCH, KEYBOARD (UP)					
R719	1-249-413-11	CARBON	470	5%	1/4W	F	S749	1-762-875-21	SWITCH, KEYBOARD (RIGHT)					
R720	1-249-411-11	CARBON	330	5%	1/4W									
R722	1-249-418-11	CARBON	1.2K	5%	1/4W	F	S750	1-762-875-21	SWITCH, KEYBOARD (DOWN)					
*****														
R723	1-249-417-11	CARBON	1K	5%	1/4W	F		1-680-269-11	RELAY BOARD					
R724	1-249-415-11	CARBON	680	5%	1/4W	F			*****					
R725	1-249-414-11	CARBON	560	5%	1/4W	F			< CONNECTOR >					
R726	1-249-413-11	CARBON	470	5%	1/4W	F								
R727	1-249-411-11	CARBON	330	5%	1/4W									
							CN792	1-784-873-21	CONNECTOR,FFC(LIF(NON-ZIF))22P					
R729	1-247-843-11	CARBON	3.3K	5%	1/4W		CN793	1-793-311-11	CONNECTOR,FFC(LIF(NON-ZIF))25P					
R730	1-249-422-11	CARBON	2.7K	5%	1/4W	F	*****							
R731	1-249-420-11	CARBON	1.8K	5%	1/4W	F								
R732	1-249-418-11	CARBON	1.2K	5%	1/4W	F		1-679-982-11	RING SW BOARD					
R733	1-249-417-11	CARBON	1K	5%	1/4W	F			*****					
									< RESISTOR >					
R734	1-249-415-11	CARBON	680	5%	1/4W	F								
R735	1-249-414-11	CARBON	560	5%	1/4W	F								
R736	1-249-413-11	CARBON	470	5%	1/4W	F								
R738	1-249-409-11	CARBON	220	5%	1/4W	F	R791	1-249-427-11	CARBON	6.8K	5%	1/4W	F	
R739	1-249-409-11	CARBON	220	5%	1/4W	F	R792	1-249-425-11	CARBON	4.7K	5%	1/4W	F	
									< SWITCH >					
R740	1-249-411-11	CARBON	330	5%	1/4W									
R742	1-249-406-11	CARBON	120	5%	1/4W	F								
R744	1-249-406-11	CARBON	120	5%	1/4W	F	S791	1-786-084-11	SWITCH, DETECTION					
R746	1-249-406-11	CARBON	120	5%	1/4W	F	*****							
R748	1-247-807-31	CARBON	100	5%	1/4W				1-680-257-11				SUB POWER BOARD	
									*****					
R749	1-247-807-31	CARBON	100	5%	1/4W				< CAPACITOR >					
R793	1-247-807-31	CARBON	100	5%	1/4W									
R794	1-247-807-31	CARBON	100	5%	1/4W									
R795	1-247-807-31	CARBON	100	5%	1/4W									
R796	1-249-425-11	CARBON	4.7K	5%	1/4W	F	△ C911	1-113-925-11	CERAMIC	0.01uF	20.00%	250V		
							C912	1-126-768-11	ELECT	2200uF	20.00%	16V		
							C913	1-124-584-00	ELECT	100uF	20%	10V		
R797	1-249-417-11	CARBON	1K	5%	1/4W	F	C921	1-124-589-11	ELECT	47uF	20%	16V		
< SWITCH >									< CONNECTOR >					
S701	1-762-875-21	SWITCH, KEYBOARD (POWER)												
S702	1-762-875-21	SWITCH, KEYBOARD (DIMMER)					CN911	1-564-321-00	PIN, CONNECTOR 2P					
S703	1-762-875-21	SWITCH, KEYBOARD (MENU/NO)							< DIODE >					
S704	1-762-875-21	SWITCH, KEYBOARD (ENTER/YES)												
S705	1-762-875-21	SWITCH, KEYBOARD (MD EJECT)												
S706	1-473-392-11	ENCODER, ROTARY (VOLUME)					△ D911	8-719-911-19	DIODE 1SS133T-72					
S707	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)					D912	8-719-024-99	DIODE 11ES2-NTA2B					
S725	1-762-875-21	SWITCH, KEYBOARD (REC MODE)					D913	8-719-024-99	DIODE 11ES2-NTA2B					
S726	1-762-875-21	SWITCH, KEYBOARD (REC MD)					D914	8-719-024-99	DIODE 11ES2-NTA2B					
S727	1-762-875-21	SWITCH, KEYBOARD (REC TAPE)					D915	8-719-024-99	DIODE 11ES2-NTA2B					

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

## SUB POWER

## TC

## THERMAL

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
D921	8-719-911-19	DIODE 1SS133T-72				< COIL >	
D922	8-719-911-19	DIODE 1SS133T-72		L301	1-410-780-11	INDUCTOR 27MH	
		< IC >		L351	1-410-780-11	INDUCTOR 27MH	
IC911	8-759-158-62	IC TA78057S				< TRANSISTOR >	
		< TRANSISTOR >		Q301	8-729-801-93	TRANSISTOR 2SD1387-34-TP	
Q911	8-729-119-78	TRANSISTOR 2SC2785TP-HFE		Q302	8-729-142-46	TRANSISTOR 2SC2001TP-LK	
		< RESISTOR >		Q303	8-729-142-46	TRANSISTOR 2SC2001TP-LK	
R911	1-249-429-11	CARBON 10K 5% 1/4W		Q304	8-729-027-31	TRANSISTOR DTA124EKA-T146	
R912	1-249-441-11	CARBON 100K 5% 1/4W		Q305	8-729-900-53	TRANSISTOR DTC114EKA-T146	
R921	1-249-416-11	CARBON 820 5% 1/4W F				< RESISTOR >	
R922	1-249-416-11	CARBON 820 5% 1/4W F		R336	1-216-846-11	METAL CHIP 120K 5% 1/16W	
R923	1-249-419-11	CARBON 1.5K 5% 1/4W F		R337	1-216-813-11	METAL CHIP 220 5% 1/16W	
		< RELAY >		R338	1-216-837-11	METAL CHIP 22K 5% 1/16W	
△RY911	1-755-276-11	RELAY, POWER		R339	1-216-834-11	METAL CHIP 12K 5% 1/16W	
		< TRANSFORMER >		R340	1-216-850-11	METAL CHIP 270K 5% 1/16W	
△T911	1-435-850-11	TRANSFORMER, POWER (AEP,UK)		R341	1-216-813-11	METAL CHIP 220 5% 1/16W	
△T911	1-435-851-11	TRANSFORMER, POWER (AUS,HK)		R342	1-216-834-11	METAL CHIP 12K 5% 1/16W	
*****				△R343	1-219-787-17	FUSIBLE 5.6 5% 1/4W	
	A-4476-076-A	TC BOARD, COMPLETE		△R344	1-219-787-17	FUSIBLE 5.6 5% 1/4W	
		*****		R345	1-216-836-11	METAL CHIP 18K 5% 1/16W	
		< CAPACITOR >		R346	1-216-836-11	METAL CHIP 18K 5% 1/16W	
C129	1-126-964-11	ELECT 10uF 20.00% 50V		R347	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
C326	1-164-392-11	CERAMIC CHIP 390PF 10.00% 50V		R348	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
C327	1-104-665-11	ELECT 100uF 20.00% 10V		R349	1-216-821-11	METAL CHIP 1K 5% 1/16W	
C328	1-162-953-11	CERAMIC CHIP 100PF 5% 50V		R386	1-216-846-11	METAL CHIP 120K 5% 1/16W	
C329	1-130-483-00	MYLAR 0.01uF 5% 50V		R387	1-216-813-11	METAL CHIP 220 5% 1/16W	
C330	1-126-964-11	ELECT 10uF 20.00% 50V		R388	1-216-837-11	METAL CHIP 22K 5% 1/16W	
C331	1-126-965-11	ELECT 22uF 20.00% 50V		R389	1-216-834-11	METAL CHIP 12K 5% 1/16W	
C332	1-137-427-11	MYLAR 120PF 5.00% 50V		R390	1-216-850-11	METAL CHIP 270K 5% 1/16W	
C333	1-162-961-11	CERAMIC CHIP 330PF 10% 50V		R391	1-216-864-11	SHORT 0	
C334	1-162-946-11	CERAMIC CHIP 27PF 5% 50V		R392	1-216-834-11	METAL CHIP 12K 5% 1/16W	
C335	1-137-150-11	MYLAR 0.01uF 5.00% 100V		R393	1-216-837-11	METAL CHIP 22K 5% 1/16W	
C336	1-126-961-11	ELECT 2.2uF 20.00% 50V		R394	1-216-813-11	METAL CHIP 220 5% 1/16W	
C337	1-130-485-00	MYLAR 0.015uF 5% 50V		R396	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
C338	1-130-481-00	MYLAR 0.0068uF 5% 50V		R397	1-216-821-11	METAL CHIP 1K 5% 1/16W	
C339	1-130-481-00	MYLAR 0.0068uF 5% 50V		R398	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
C340	1-130-486-00	MYLAR 0.018uF 10% 50V				< VARIABLE RESISTOR >	
C341	1-126-960-11	ELECT 1uF 20.00% 50V		RV304	1-241-768-11	RES, ADJ, CARBON 220K	
C342	1-104-664-11	ELECT 47uF 20.00% 16V		RV354	1-241-768-11	RES, ADJ, CARBON 220K	
C376	1-164-392-11	CERAMIC CHIP 390PF 10.00% 50V				< TRANSFORMER >	
C377	1-104-665-11	ELECT 100uF 20.00% 10V		T301	1-423-980-11	TRANSFORMER, BIAS OSCILLATION	
C378	1-162-953-11	CERAMIC CHIP 100PF 5% 50V		*****			
C379	1-130-483-00	MYLAR 0.01uF 5% 50V			1-680-270-11	THERMAL BOARD	
C380	1-126-964-11	ELECT 10uF 20.00% 50V				*****	
C381	1-126-965-11	ELECT 22uF 20.00% 50V				< CONNECTOR >	
C382	1-137-427-11	MYLAR 120PF 5.00% 50V		CN803	1-568-951-11	PIN, CONNECTOR 2P	
C383	1-162-961-11	CERAMIC CHIP 330PF 10% 50V				< THERMISTOR(POSITIVE) >	
C384	1-162-946-11	CERAMIC CHIP 27PF 5% 50V		THP842	1-807-796-11	THERMISTOR	
		< IC >		*****			
IC302	8-759-143-54	IC uPC1330HA		The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.			
IC304	8-759-656-83	IC NJM4580MD-TE					



HCD-CL5MD

Ver 1.1 2002. 02

TRANS	TRAY SENSOR	VOL SEL
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Ref. No.	Part No.	Description	Remarks			
	1-680-256-11	TRANS BOARD *****				
	1-533-217-31	HOLDER, FUSE  < CAPACITOR >				
C901	1-136-165-00	FILM	0.1uF	5.00%	50V	
C902	1-136-165-00	FILM	0.1uF	5.00%	50V	
C931	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN901	1-564-321-00	PIN, CONNECTOR 2P (AEP,UK,AUS)				
* CN902	1-564-523-11	PLUG, CONNECTOR 8P				
* CN903	1-568-942-11	PIN, CONNECTOR 4P				
* CN904	1-564-518-11	PLUG, CONNECTOR 3P				
		< DIODE >				
D901	8-719-028-23	DIODE D3SBA20-4101				
D934	8-719-911-19	DIODE 1SS133T-72				
		< FUSE >				
△ F901	1-533-466-11	FUSE, GLASS TUBE (DIA. 5)1.25A/250V (AEP,UK)				
△ F901	1-533-469-11	FUSE, GLASS TUBE (DIA. 5)2.5A/250V (HK)				
△ F902	1-533-466-11	FUSE, GLASS TUBE (DIA. 5)1.25A/250V (HK)				
△ F903	1-533-466-11	FUSE, GLASS TUBE (DIA. 5)1.25A/250V (HK,AUS)				
		< TRANSISTOR >				
Q931	8-729-119-78	TRANSISTOR 2SC2785TP-HFE				
Q932	8-729-140-04	TRANSISTOR 2SB1116-TP-LK				
Q933	8-729-900-80	TRANSISTOR BA1A4M-TP				
		< RESISTOR >				
△ R901	1-219-119-81	FUSIBLE	0.1	5%	1/4W	
△ R902	1-219-119-81	FUSIBLE	0.1	5%	1/4W	
R931	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R932	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R933	1-249-415-11	CARBON	680	5%	1/4W	F
*****						
	1-678-457-11	TRAY SENSOR BOARD *****				
		< CAPACITOR >				
C731	1-164-159-11	CERAMIC	0.1uF		50V	
		< IC >				
IC731	8-749-081-01	PHOTO SENSOR DG-264				
IC732	8-749-081-01	PHOTO SENSOR DG-264				
IC733	8-749-081-01	PHOTO SENSOR DG-264				
		< RESISTOR >				
R731	1-247-876-11	CARBON	75K	5%	1/4W	
R732	1-249-408-11	CARBON	180	5%	1/4W	F
R733	1-247-876-11	CARBON	75K	5%	1/4W	
R734	1-249-408-11	CARBON	180	5%	1/4W	F
R735	1-247-876-11	CARBON	75K	5%	1/4W	
R736	1-249-408-11	CARBON	180	5%	1/4W	F
*****						

Ref. No.	Part No.	Description	Remarks
	1-680-258-11	VOL SEL BOARD (HK) *****	
		< CONNECTOR >	
CN941	1-568-106-11	PIN, CONNECTOR 4P	
CN942	1-564-321-00	PIN, CONNECTOR 2P	
CN943	1-774-108-11	PIN, CONNECTOR (PC BOARD)	
		< SWITCH >	
△ S943	1-786-055-11	SELECTOR, VOLTAGE (VOLTAGE SLECTOR) *****	
		MISCELLANEOUS *****	
5	1-769-910-11	WIRE (FLAT TYPE) (9 CORE)	
6	1-693-529-11	TUNER	
7	1-769-944-11	WIRE (FLAT TYPE) (11 CORE) (AUS,HK)	
7	1-773-008-11	WIRE (FLAT TYPE) (15 CORE) (AEP,UK)	
11	1-763-072-11	FAN, DC	
12	1-796-351-11	MECHANISM, SINGLE CASSETTE (CMAL1Z215B)	
60	1-804-260-11	DISPLAY PANEL, LIQUID CRYSTAL	
64	1-775-152-11	WIRE (FLAT TYPE) (17 CORE)	
65	1-775-237-11	WIRE (FLAT TYPE) (27 CORE)	
67	1-773-207-11	WIRE (FLAT TYPE) (25 CORE)	
101	1-773-214-11	WIRE (FLAT TYPE) (25 CORE)	
△ 109	1-777-071-81	CORD, POWER (AEP,HK)	
△ 109	1-783-203-11	CORD, POWER (AUS)	
△ 109	1-790-226-11	CORD, POWER (UK)	
△ 112	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (HK)	
357	1-678-514-11	PWB, FLEXIBLE	
577	1-757-574-11	WIRE (FLAT TYPE) (22 CORE)	
602	1-782-817-11	WIRE (FLAT TYPE) (16 CORE)	
△ T901	1-435-833-11	TRANSFORMER, POWER (AEP,UK)	
△ T901	1-435-834-11	TRANSFORMER, POWER (AUS,HK)	
HR901	1-500-670-11	HEAD, OVER LIGHT	
S102	1-771-957-11	SWITCH, PUSH (2 KEY)	
M721	1-541-632-12	MOTOR, DC	
*****			
		***** HARDWARE LIST *****	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-872-09	SCREW +BVTT 3X8 (S)	
#4	7-685-650-79	SCREW +BVTP 3X16 TYPE2 N-S	
#5	7-685-881-09	SCREW +BVTT 4X8 (S)	
#6	7-685-850-04	SCREW +BVTT 2X3 (S)	
#7	7-685-204-19	SCREW +KTP 2X6 TYPE2 NON-SLIT	
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.			